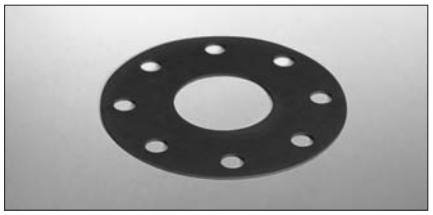
# Cast Iron Services Ltd.

## Ductile Iron Pipes and Fittings



tyco / Flow Control / Tyco Waterworks

# Technical Catalogue

CIS

CIS - Cast Iron Services - Ductile Iron Pipes and Fittings

## Introduction

Established in 1977, C.I.S. (Cast Iron Services) Ltd. is one of the largest British manufacturers and suppliers of ductile iron pipes and fittings. The company specialises in the supply of fittings and fabricated ductile iron flanged pipe, and offers the widest range of ductile iron fittings in the UK.

This technical catalogue gives detailed information about the full range of products available from C.I.S. Further technical information on individual products may be supplied on request.

## Contents



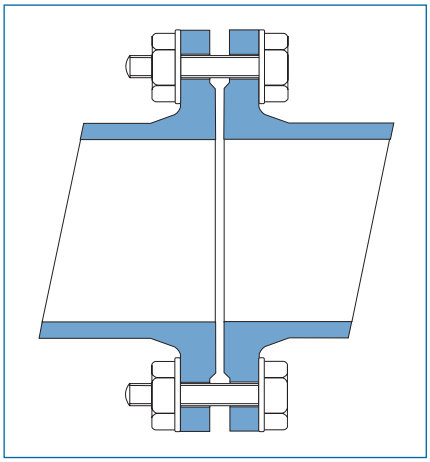
## Standards

In recent years there have been changes in the standards relating to ductile iron pipes and fittings. In Europe, EN 545 and EN 598 were introduced to replace the national standards of each European member, such as BS 4772 and DIN 28600.

The range of fittings covered under the new standards is more limited, so the policy of CIS is to supply the full range of fittings covered under BS4772 as well as meeting the requirements of the new EN 545 and EN 598.

- EN545: 1994 Ductile iron pipes and fittings for clean water pipelines
- EN598: 1994 Ductile iron pipes and fittings for sewage applications
- ISO2531: 1991 Ductile iron pipes and fittings (International standard)
- BS4772:1988 Ductile iron pipes and fittings (Withdrawn 1995)

## Flanged Pipes and Fittings
Pages 3 to 17



### Size range
DN 50 - 1600 (Fixed flange)

### Application
For use above ground, in water and sewage treatment works, pumping stations etc.

### Characteristics
Rigid, self anchoring joints that provide easy installation and removal of valves, hydrants etc.

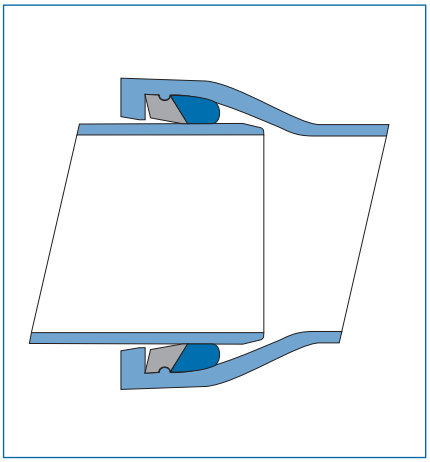
### Notes
All flanges will be supplied to PN16 as standard.

Other flanges to BS 4504* (PN 10, 25 and 40) are available on request.

Special fittings may also be supplied to BS 10: 1962 Tables A, D, E and F, and to ASA 125.

*BS 4504 is to be replaced by:
BS EN 1092-2:1997

## Socketed Pipes and Fittings
Pages 18 to 26



### Size Range
DN 80 - 1200

### Application
For use below ground, e.g. water and pressure sewage pipelines.

### Characteristics
Flexible joint allowing some angular deflection and longitudinal withdrawal.

### Notes
Where self anchored joints are required, anchor gaskets may be used for certain sizes. Tied socket joints are available on request for all sizes.

Cast Iron Services Ltd.
Ductile Iron Pipes and Fittings

## Wall Thickness of Ductile Iron Pipe and Fittings

| | DN | 50 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1400 | 1600 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean thickness (mm) | K9 | 6.0 | 6.0 | 6.1 | 6.2 | 6.3 | 6.4 | 6.8 | 7.2 | 7.7 | 8.1 | 8.6 | 9.0 | 9.9 | 10.8 | 11.7 | 12.6 | 13.5 | 14.4 | 15.3 | 17.1 | 18.9 |
| | K12 | 6.6 | 7.0 | 7.2 | 7.5 | 7.8 | 8.4 | 9.0 | 9.6 | 10.2 | 10.8 | 11.4 | 12.0 | 13.2 | 14.4 | 15.6 | 16.8 | 18.0 | 19.2 | 20.4 | 22.8 | 25.2 |
| | K14 | 8.0 | 8.1 | 8.4 | 8.7 | 9.1 | 9.8 | 10.5 | 11.2 | 11.9 | 12.6 | 13.3 | 14.0 | 15.4 | 16.8 | 18.2 | 19.6 | 21.0 | 22.4 | 23.8 | 26.6 | 29.4 |

## Pressure Ratings

Please note that the figures given in the tables below do not apply to all fittings. Limitations are shown against individual products.

1 bar = 10.2 metres head

## Maximum Hydraulic Working Pressures

| DN | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1400 | 1600 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K9 Pipes & K12 fittings | 60 | 60 | 60 | 60 | 53 | 47 | 43 | 40 | 38 | 36 | 33 | 31 | 29 | 28 | 27 | 26 | 25 | 25 | 25 |
| K14 fittings | 60 | 60 | 60 | 50 | 40 | 40 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |

For flanged joints, maximum working pressures are:
PN10 = 10 bar, PN16 = 16 bar, PN25 = 25 bar, PN40 = 40 bar

## Works Hydrostatic Test Pressures

| DN | K9 Centrifugally cast pipes | | | | | *K12 pipes with integral flanges, K12 & K14 fittings |
|---|---|---|---|---|---|---|
| | With Flexible Joints | With welded flanges | | | | |
| | | PN10 | PN16 | PN25 | PN40 | |
| mm | bar | bar | bar | bar | bar | bar |
| 80 - 300 | 50 | 16 | 25 | 32 | 40 | 25 |
| 350 - 600 | 40 | 16 | 25 | 32 | 40 | 16 |
| 700 - 800 | 32 | 16 | 25 | 32 | - | 10 |
| 900 - 1200 | 32 | 16 | 25 | 25 | - | 10 |
| 1400 - 1600 | 25 | 16 | 25 | 25 | - | 2 |

*The hydrostatic test pressure applied to fittings is a leak tightness test only.
Higher test pressures are not applied because of the risk of distortion resulting from high restraining loads imposed on the fittings by the test apparatus.

## Maximum Site Hydraulic Test Pressures

| DN | Pipes and fittings with flexible joints | Flanged Joints | | |
|---|---|---|---|---|
| | | PN10 | PN16 | PN25 |
| mm | bar | bar | bar | bar |
| 80 - 150 | 65 | 16 | 25 | 40 |
| 200 | 55 | 16 | 25 | 40 |
| 250 - 300 | 45 | 16 | 25 | 40 |
| 350 - 600 | 30 | 16 | 25 | 40 |
| 700 - 1600 | 30 | 16 | 25 | 30 |

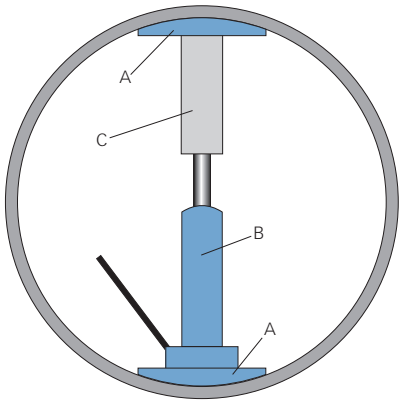
The site test program should not be less than the greater of the following:
a) The working pressure plus 5 bar
b) The calculated surge pressure
It should not exceed the values in the table above

## Cutting of Pipes on Site

- Pipes may be cut on site using an abrasive disc cutter.
- The pipe should be placed on level ground or square timbers and the cutting line marked.
- The pipe should be cut through at one point and then cut along the marked line in a single operation.
- The cut end must be filed to remove sharp edges and when jointing into a socket the chamfer should be restored with an angle grinder.
(For dimensions see page 18.)
- The bare metal surface should be re-coated with bitumen. With careful cutting, the cement lining should not be damaged. If necessary, guidelines for repair are available upon request.

## Ovality Correction

When ductile pipes, particularly those over DN 450, are cut, the release of stress may cause the pipe to become oval. This can be corrected by the use of a jack and timber strut as shown.
The jack can be removed once a joint has been made.




A - Rubber Pad
B - Jack
C - Timber

## Internal and External Finishes

The internal and external finishes of ductile iron pipework and fittings are generally determined by the specification and application of the product. EN 545 relates to clean water; EN 598 to sewage.

### Internal and External Finishes

| Standard | | Coating / Lining Options | Pipes | Fitting | Notes |
|---|---|---|---|---|---|
| EN 545 | External | Bitumen coated black | ❍ | ● | WRC approved materials, mean thickness 70 microns DFT |
| | | Zinc & bitumen coated | ● | ❍ | WRC approved materials, mean thickness 70 microns DFT |
| | | Fusion bonded epoxy coated - blue | ❍ | ❍ | WRC approved materials, 150 microns minimum to WIS 4-52-01 |
| | Internal | Bitumen coated - black | ❍ | ❍ | WRC approved materials, mean thickness 70 microns DFT |
| | | Cement mortar lined | ● | ● | WRC approved materials, thickness as specified in EN 545 (see below) |
| | | Cement mortar lined & bitumen seal coated | ❍ | ❍ | WRC approved materials, mean thickness 70 microns DFT |
| | | Fusion boned epoxy coated - blue | ❍ | ❍ | WRC approved materials, 150 microns minimum to WIS 4-52-01 |
| EN 598 | External | Bitumen coated - black or red / brown | ❍ | ❍ | Coating should be average 70 microns DFT |
| | | Zinc & bitumen coated - black or red / brown | ● | ❍ | Coating should be average 70 microns DFT |
| | | Zinc & 2 pack epoxy coated - red / brown | ● | ● | Pipes - 50 microns average, fittings - 250 microns average DFT |
| | Internal | High alumina cement lined | ● | ❍ | Not recommended for fittings |
| | | High alumina cement lined & bitumen sealed | ❍ | ❍ | Seal coating should be 50 microns minimum |
| | | Zinc & 2 pack epoxy coated - red / brown | N/A | ● | Fittings only - 250 microns average thickness |
| | | Bitumen coated - black or red / brown | ❍ | ❍ | Coating should be 70 microns minimum |

● Standard coating / lining. Supplied unless otherwise specified.

❍ Optional coating / lining where specified

### Cement Mortar Lining

| DN mm | Nominal thickness mm | Tolerance (negative only) mm | Max. crack width & radial displacement mm |
|---|---|---|---|
| 80 - 300 | 3.5 | -1.5 | 0.8 |
| 350 - 600 | 5 | -2 | 1.0 |
| 700 - 1200 | 6 | -2.5 | 1.2 |

The lining at pipe ends may have a chamfer of maximum length 50mm.

The width and corresponding radial displacement of shrinkage cracks shall not exceed the values given in the table above.

NB. Storage of pipes and fittings in a hot, dry environment can cause metal expansion and mortar shrinkage which may result in the dry lining developing areas of disbondment and shrinkage cracks. When the lining is re-exposed to water, it will swell by absorption of moisture and the cracks will eventually heal by an autogenous process and re-bonding to the metal will occur.

### Polythene sleeving

Where Tyton pipes and fittings are to be buried in aggressive ground conditions the use of polythene sleeving is recommended. It is standard practice to have blue sleeving for water pipelines and black for sewage.

- Factory applied sleeving
  Full length pipes may have sleeving pre applied at the factory prior to delivery.
- Site applied sleeving to BS 6076
  This is supplied in rolls which can be easily fitted on site.
  PVC tape is used to join the sleeving.
  Tape roll size:
  50mm x 33 metres long.

### Sizes of Sleeving Roll

| DN mm | Lay flat Width mm | Roll Length m | Weight Kg |
|---|---|---|---|
| 80 | 280 | 87 | 11 |
| 100 | 280 | 87 | 11 |
| 150 | 400 | 87 | 16 |
| 200 | 550 | 87 | 22 |
| 250 | 650 | 87 | 26 |
| 300 | 700 | 87 | 28 |
| 350 | 800 | 87 | 33 |
| 400 | 1100 | 87 | 45 |
| 450 | 1100 | 87 | 45 |
| 500 | 1350 | 44 | 28 |
| 600 | 1350 | 44 | 28 |
| 700 | 1750 | 44 | 36 |
| 800 | 1750 | 44 | 36 |
| 900 | 2000 | 44 | 41 |
| 1000 | 2000 | 44 | 41 |

### Tape Wrapping

Where conditions are particularly aggressive, pipes and fittings may be protected by spiral wrapping with mastic backed PVC tape. Pipes and fittings may be factory or site wrapped. Joints are wrapped on site.

### Additional Notes

The zinc on pipe barrels is sprayed; on fittings zinc rich paint is applied.
Bitumen coatings are cold applied in accordance with BS 3416: 1991.

For bitumen coatings to EN 598, the colour should be specified as black or red / brown.

Fusion bonded epoxy coatings are normally applied to give a minimum 150 microns, but generally 250 - 300 microns is obtained.

Note:
For large pipes & fittings, particularly those above DN 300, the specification of holiday free epoxy coating is not a sensible option as, because of the weight of the castings, transit and handling damage is difficult to avoid. Minor site repairs of fusion bonded epoxy coatings can be expected in such fittings.

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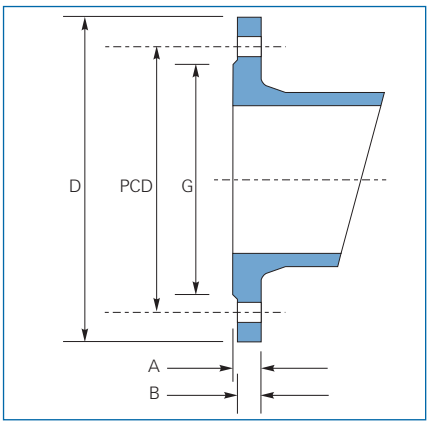
## Flange specifications

- PN16 flanges are supplied as standard on pipes and fittings for working pressures up to and including 16 bar.
- PN10 flanges are supplied on request for pipes and fittings for working pressures up to and including 10 bar.
- PN25 flanges are supplied to special order for pipes and fittings for working pressures over 16 bar and up to and including 25 bar.
- PN40 flanges are supplied to special order for pipes and fittings for working pressures over 25 bar and up to and including 40 bar.
- Working pressures are applicable within the temperature range -10°C to 120°C

## PN16 Flanges (supplied as standard)

| DN | D | G | A | B | Holes | | | *Bolt size and length | Spanner size across flats | **Approx. bolting torque to seal at: | | | | DN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PCD | Nr | Dia. | | | 10 bar | 16 bar | 20 bar | 25 bar | |
| mm | mm | mm | mm | mm | mm | | mm | mm | mm | Nm | Nm | Nm | Nm | mm |
| 50 | 165 | 98 | 19.0 | 16.0 | 125 | 4 | 19 | M16 x 65 | 24 | - | - | - | - | 50 |
| 80 | 200 | 132 | 19.0 | 16.0 | 160 | 8 | 19 | M16 x 65 | 24 | 70 | 70 | 75 | 75 | 80 |
| 100 | 220 | 156 | 19.0 | 16.0 | 180 | 8 | 19 | M16 x 65 | 24 | 75 | 80 | 80 | 80 | 100 |
| 125 | 250 | 184 | 19.0 | 16.0 | 210 | 8 | 19 | M16 x 65 | 24 | - | - | - | - | 125 |
| 150 | 285 | 211 | 19.0 | 16.0 | 240 | 8 | 23 | M20 x 70 | 30 | 115 | 120 | 125 | 135 | 150 |
| 200 | 340 | 266 | 20.0 | 17.0 | 295 | 12 | 23 | M20 x 70 | 30 | 110 | 115 | 120 | 130 | 200 |
| 250 | 400 | 319 | 22.0 | 19.0 | 355 | 12 | 28 | M24 x 85 | 36 | 155 | 165 | 175 | 180 | 250 |
| 300 | 455 | 370 | 24.5 | 20.5 | 410 | 12 | 28 | M24 x 85 | 36 | 165 | 180 | 190 | 210 | 300 |
| 350 | 520 | 432 | 26.5 | 22.5 | 470 | 16 | 28 | M24 x 85 | 36 | 160 | 175 | 185 | 200 | 350 |
| 400 | 580 | 480 | 28.0 | 24.0 | 525 | 16 | 31 | M27 x 100 | 41 | 200 | 220 | 235 | 270 | 400 |
| 450 | 640 | 548 | 30.0 | 26.0 | 585 | 20 | 31 | M27 x 100 | 41 | 195 | 215 | 230 | 260 | 450 |
| 500 | 715 | 609 | 31.5 | 27.5 | 650 | 20 | 34 | M30 x 110 | 46 | 240 | 270 | 295 | 345 | 500 |
| 600 | 840 | 720 | 36.0 | 31.0 | 770 | 20 | 37 | M33 x 120 | 50 | 305 | 365 | 425 | 505 | 600 |
| 700 | 910 | 794 | 39.5 | 34.5 | 840 | 24 | 37 | M33 x 130 | 50 | 350 | 465 | 540 | 635 | 700 |
| 800 | 1025 | 901 | 43.0 | 38.0 | 950 | 24 | 40 | M36 x 140 | 55 | 470 | 630 | 735 | 870 | 800 |
| 900 | 1125 | 1001 | 46.5 | 41.5 | 1050 | 28 | 40 | M36 x 140 | 55 | 475 | 645 | 760 | 900 | 900 |
| 1000 | 1255 | 1112 | 50.0 | 45.0 | 1170 | 28 | 43 | M39 x 160 | 60 | 605 | 835 | 985 | 1175 | 1000 |
| 1100 | 1355 | 1218 | 53.5 | 48.5 | 1270 | 32 | 43 | M39 x 160 | 60 | 610 | 850 | 1005 | 1205 | 1100 |
| 1200 | 1485 | 1328 | 57.0 | 52.0 | 1390 | 32 | 49 | M45 x 180 | 70 | 810 | 1140 | 1360 | 1630 | 1200 |
| 1400 | 1685 | 1530 | 60.0 | 55.0 | 1590 | 36 | 49 | M45 x 180 | 70 | 915 | 1300 | 1555 | 1875 | 1400 |

* Please note that bolt lengths are measured from the underside of the head ** Bolting torques using 3mm thick IHRD rubber gaskets.




## Bolts

Bolts are supplied in bagged sets containing the appropriate number of bolts, nuts and washers for each flanged joint.

| | |
|---|---|
| Standard | Black or galvanised to BS 4190 |
| Options | Rilsan coated |
| | Stainless steel |
| | Sheradised |
| | Zinc plated |

## Gaskets

Gaskets are supplied either as Full Face or IBC

| | |
|---|---|
| Standard | EPDM to BS 2494 - Type W (for potable water and pressure sewage) |
| Options | Nitrile |
| | Neoprene |
| | Commercial Rubber |

## PN10 Flanges

| DN | D | G | A | B | Holes | | | *Bolt size | Spanner size | **Approx. bolting torque to seal @ | | | DN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PCD | Nr | Dia. | and length | across flats | 5bar | 10 bar | 16 bar | |
| mm | mm | mm | mm | mm | mm | | mm | mm | mm | Nm | Nm | Nm | mm |
| 50 | 165 | 98 | 19.0 | 16.0 | 125 | 4 | 19 | M16 x 65 | 24 | | | | 50 |
| 80 | 200 | 132 | 19.0 | 16.0 | 160 | 8 | 19 | M16 x 65 | 24 | 70 | 70 | 70 | 80 |
| 100 | 220 | 156 | 19.0 | 16.0 | 180 | 8 | 23 | M16 x 65 | 24 | 70 | 75 | 80 | 100 |
| 150 | 285 | 211 | 19.0 | 16.0 | 240 | 8 | 23 | M20 x 70 | 30 | 110 | 115 | 120 | 150 |
| 200 | 340 | 266 | 20.0 | 17.0 | 295 | 8 | 23 | M20 x 70 | 30 | 120 | 130 | 140 | 200 |
| 250 | 400 | 319 | 22.0 | 19.0 | 350 | 12 | 23 | M20 x 80 | 30 | 110 | 120 | 130 | 250 |
| 300 | 455 | 370 | 24.5 | 20.5 | 400 | 12 | 23 | M20 x 80 | 30 | 120 | 130 | 145 | 300 |
| 350 | 505 | 429 | 24.5 | 20.5 | 460 | 16 | 23 | M20 x 80 | 30 | 115 | 125 | 135 | 350 |
| 400 | 565 | 480 | 24.5 | 20.5 | 515 | 16 | 28 | M24 x 85 | 36 | 155 | 170 | 185 | 400 |
| 450 | 615 | 530 | 25.5 | 21.5 | 565 | 20 | 28 | M24 x 85 | 36 | 150 | 165 | 180 | 450 |
| 500 | 670 | 582 | 26.5 | 22.5 | 620 | 20 | 28 | M24 x 90 | 36 | 155 | 170 | 195 | 500 |
| 600 | 780 | 682 | 30.0 | 25.0 | 725 | 20 | 31 | M27 x 100 | 41 | 200 | 225 | 275 | 600 |
| 700 | 895 | 794 | 32.5 | 27.5 | 840 | 24 | 31 | M27 x 110 | 41 | 200 | 230 | 295 | 700 |
| 800 | 1015 | 901 | 35.0 | 30.0 | 950 | 24 | 34 | M30 x 110 | 46 | 250 | 300 | 405 | 800 |
| 900 | 1115 | 1001 | 37.5 | 32.5 | 1050 | 28 | 34 | M30 x 120 | 46 | 250 | 300 | 415 | 900 |
| 1000 | 1230 | 1112 | 40.0 | 35.0 | 1160 | 28 | 37 | M33 x 130 | 50 | 300 | 390 | 535 | 1000 |
| 1100 | 1340 | 1218 | 42.5 | 37.5 | 1270 | 32 | 37 | M33 x 130 | 50 | 300 | 395 | 550 | 1100 |
| 1200 | 1455 | 1328 | 45.0 | 40.0 | 1380 | 32 | 40 | M36 x 140 | 55 | 360 | 495 | 695 | 1200 |
| 1400 | 1675 | 1530 | 46.0 | 41.0 | 1590 | 36 | 43 | M39 x 150 | 60 | 420 | 590 | 840 | 1400 |
| 1600 | 1915 | 1750 | 49.0 | 44.0 | 1820 | 40 | 49 | M45 x 160 | 70 | 530 | 765 | 1095 | 1600 |

## PN25 Flanges

| DN | D | G | A | B | Holes | | | *Bolt size | Spanner size | **Approx. bolting torque to seal @ | | | | | DN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PCD | Nr | Dia. | and length | across flats | 20 bar | 26 bar | 30 bar | 35 bar | 40 bar | |
| mm | mm | mm | mm | mm | mm | | mm | mm | mm | Nm | Nm | Nm | Nm | Nm | mm |
| 50 | 165 | 98 | 19.0 | 16.0 | 125 | 4 | 19 | M16 x 65 | 24 | | | | | | 50 |
| 80 | 200 | 132 | 19.0 | 16.0 | 160 | 8 | 19 | M16 x 65 | 24 | 80 | 85 | 85 | 85 | 90 | 80 |
| 100 | 235 | 156 | 19.0 | 16.0 | 190 | 8 | 23 | M20 x 70 | 30 | 120 | 125 | 130 | 130 | 135 | 100 |
| 150 | 300 | 211 | 20.0 | 17.0 | 250 | 8 | 28 | M24 x 85 | 36 | 180 | 185 | 195 | 210 | 230 | 150 |
| 200 | 360 | 274 | 22.0 | 19.0 | 310 | 12 | 28 | M24 x 85 | 36 | 170 | 180 | 190 | 205 | 220 | 200 |
| 250 | 425 | 330 | 24.5 | 21.5 | 370 | 12 | 31 | M27 x 100 | 41 | 230 | 250 | 275 | 305 | 335 | 250 |
| 300 | 485 | 389 | 27.5 | 23.5 | 430 | 16 | 31 | M27 x 100 | 41 | 220 | 235 | 265 | 295 | 325 | 300 |
| 350 | 555 | 448 | 30.0 | 26.0 | 490 | 16 | 34 | M30 x 110 | 46 | 290 | 330 | 375 | 415 | 460 | 350 |
| 400 | 620 | 503 | 32.0 | 28.0 | 550 | 16 | 37 | M33 x 120 | 50 | 380 | 435 | 495 | 555 | 615 | 400 |
| 450 | 670 | 548 | 34.5 | 30.5 | 600 | 20 | 37 | M33 x 120 | 50 | 355 | 410 | 470 | 525 | 580 | 450 |
| 500 | 730 | 609 | 36.5 | 32.5 | 660 | 20 | 37 | M33 x 120 | 50 | 415 | 485 | 555 | 625 | 695 | 500 |
| 600 | 845 | 720 | 42.0 | 37.0 | 770 | 20 | 40 | M36 x 140 | 55 | 595 | 700 | 800 | 905 | 1010 | 600 |
| 700 | 960 | 820 | 46.5 | 41.5 | 875 | 24 | 43 | M39 x 150 | 60 | 675 | 795 | 915 | 1040 | 1160 | 700 |
| 800 | 1085 | 928 | 51.0 | 46.0 | 990 | 24 | 49 | M45 x 160 | 70 | 965 | 1150 | 1330 | 1510 | 1690 | 800 |
| 900 | 1185 | 1028 | 55.5 | 50.5 | 1090 | 28 | 49 | M45 x 180 | 70 | 990 | 1185 | 1375 | 1565 | 1755 | 900 |
| 1000 | 1320 | 1140 | 60.0 | 55.0 | 1210 | 28 | 56 | M52 x 200 | 80 | 1355 | 1620 | 1885 | 2155 | 2420 | 1000 |
| 1100 | 1420 | 1240 | 64.5 | 59.5 | 1310 | 32 | 56 | M52 x 200 | 80 | 1380 | 1655 | 1930 | 2205 | 2480 | 1100 |
| 1200 | 1530 | 1350 | 69.0 | 64.0 | 1420 | 32 | 56 | M52 x 200 | 80 | 1610 | 1940 | 2265 | 2595 | 2920 | 1200 |
| 1400 | 1755 | 1560 | 74.0 | 69.0 | 1640 | 36 | 62 | M56 x 220 | 85 | 1980 | 2395 | 2805 | 3215 | 3625 | 1400 |
| 1600 | 1975 | 1780 | 81.0 | 76.0 | 1860 | 40 | 62 | M56 x 240 | 85 | 2265 | 2745 | 3225 | 3705 | 4185 | 1600 |

## PN40 Flanges

| DN | D | G | A | B | Holes | | | *Bolt size | Spanner size | **Approx. bolting torque to seal @ | | | | | DN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PCD | Nr | Dia. | and length | across flats | 25 bar | 30 bar | 35 bar | 40 bar | 45 bar | |
| mm | mm | mm | mm | mm | mm | | mm | mm | mm | Nm | Nm | Nm | Nm | Nm | mm |
| 50 | 165 | 98 | 19.0 | 16.0 | 125 | 4 | 19 | M16 x 65 | 24 | | | | | | 50 |
| 80 | 200 | 133 | 19.0 | 16.0 | 160 | 8 | 19 | M16 x 65 | 24 | 70 | 75 | 75 | 80 | 80 | 80 |
| 100 | 235 | 159 | 19.0 | 16.0 | 190 | 8 | 23 | M20 x 70 | 30 | 105 | 110 | 115 | 120 | 120 | 100 |
| 150 | 300 | 214 | 26.0 | 23.0 | 250 | 8 | 28 | M24 x 85 | 36 | 160 | 170 | 180 | 185 | 195 | 150 |
| 200 | 375 | 281 | 30.0 | 27.0 | 320 | 12 | 31 | M27 x 100 | 41 | 195 | 205 | 215 | 230 | 240 | 200 |
| 250 | 450 | 343 | 34.0 | 31.0 | 385 | 12 | 34 | M30 x 110 | 46 | 260 | 280 | 305 | 345 | 380 | 250 |
| 300 | 515 | 406 | 39.5 | 35.5 | 450 | 16 | 34 | M30 x 120 | 46 | 290 | 325 | 365 | 405 | 440 | 300 |
| 350 | 580 | 465 | 44.0 | 40.0 | 510 | 16 | 37 | M33 x 140 | 50 | 390 | 445 | 500 | 550 | 605 | 350 |
| 400 | 660 | 535 | 48.0 | 44.0 | 585 | 16 | 40 | M36 x 150 | 55 | 530 | 610 | 685 | 760 | 840 | 400 |
| 450 | 685 | 560 | 50.0 | 46.0 | 610 | 20 | 40 | M36 x 150 | 55 | 475 | 545 | 610 | 680 | 745 | 450 |
| 500 | 755 | 615 | 52.0 | 48.0 | 670 | 20 | 43 | M39 x 160 | 60 | 595 | 685 | 770 | 860 | 945 | 500 |
| 600 | 890 | 735 | 58.0 | 53.0 | 795 | 20 | 49 | M45 x 180 | 70 | 930 | 1070 | 1215 | 1355 | 1500 | 600 |

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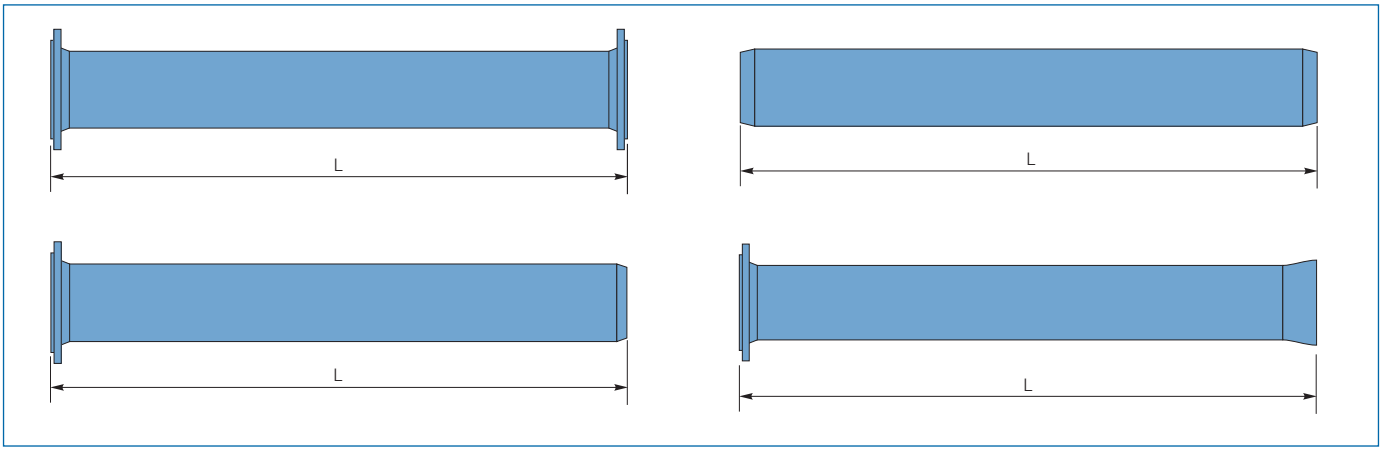
## Fabricated Pipes




## Minimum & Maximum Lengths of Class K9 Fabricated Pipes

| DN (mm) | 50 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L Minimum (mm) | 100 | 100 | 100 | 100 | 100 | 130 | 150 | 175 | 200 | 200 | 200 | 250 | 250 | 300 | 300 | 350 | 400 | 500 |
| L Maximum (mm) | 2500 | 5250 | 5250 | 5250 | 5250 | 5250 | 5250 | 5250 | 5250 | 5250 | 5250 | 5250 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |

## Weight Estimation Guide for Class K9 Fabricated Pipes

| DN (mm) | 50 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Iron (Kg/m) | 8.0 | 12.8 | 15.8 | 20.0 | 23.8 | 32.2 | 42.5 | 54.0 | 66.9 | 81 | 96 | 111 | 147 | 184 | 227 | 271 | 324 | 444 |
| Iron + CML (Kg/m) | 9.0 | 15.8 | 19.5 | 23.6 | 29.5 | 39.6 | 52.0 | 65.3 | 80.2 | 96 | 112 | 130 | 169 | 216 | 263 | 311 | 369 | 498 |
| PN16 flange (Kg) | 4.0 | 4.5 | 6 | 7 | 8 | 10 | 15 | 19 | 28 | 33 | 43 | 58 | 89 | 100 | 116 | 144 | 200 | 255 |
| Socket (Kg) | 3.2 | 4.1 | 4.8 | 5.1 | 5.4 | 9.1 | 12.8 | 18 | 22 | 26 | 31 | 38 | 54 | 59 | 66 | 85 | 130 | 166 |

## Welded Puddle Flanges

When a pipe passes through the wall of a tank below the level of liquid in the tank, seepage of liquid between the outside of the pipe and the surrounding concrete may be prevented by the use of a puddle flange.

Puddle flanges may be welded to any of the pipe configurations shown.

The position of the puddle flange should be specified using dimension, P, the distance from the end flange or spigot to the centre of the puddle flange.

## Loose Puddle Flanges - see page 17

If the exact position of the puddle flange is not known, loose puddle flanges may be used on centrifugally spun pipes where no end thrust is expected.

## Double Flanged Change Pieces

Change pieces can be fabricated for the conversion of metric flanged pipes to existing imperial pipes. Minimum and maximum lengths are as in the table above; flanges are detailed right.

## Boss Connections - see page 17

Drilled and tapped sockets and bosses can be added to all ductile iron pipes.

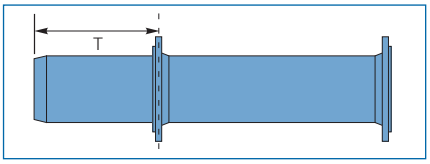
## Tie Flanges

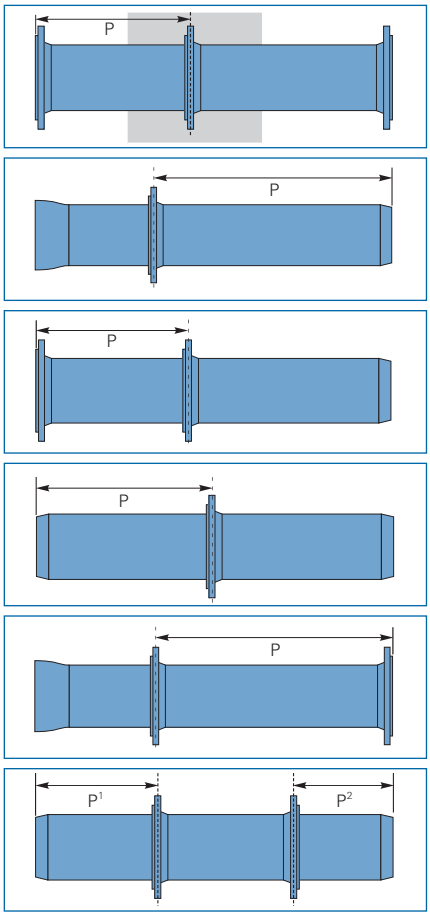
A tie flange may be used with a flange adaptor to secure the integrity of the joint. Tie flanges shall be drilled PN16 as standard.

The distance 'T' as standard is:

175mm u.t.i. DN 600

200mm DN 700 - 1000




## Flange Options

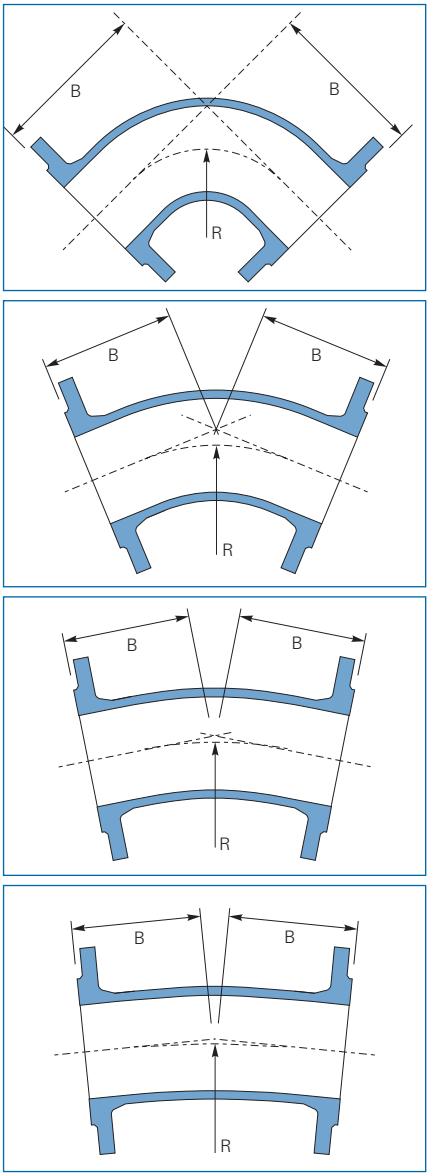
| Specification | | Size range |
|---|---|---|
| BS 4504 | PN10, PN16, PN25, PN40 | 50 - 1200mm |
| BS 10 | Tables A, D, E, F | 2 - 48 in |
| ANSI 125, ASA 125/250 | | 2 - 48 in |

## Double Flange 90° Short Radius Bends, Class K12

| DN | B | R approx. | *Weight Iron | *Weight CML |
|---|---|---|---|---|
| mm | mm | mm | Kg | Kg |
| 80 | 165 | 115 | 10 | 0.8 |
| 100 | 180 | 120 | 12 | 1.2 |
| 150 | 220 | 155 | 20 | 2.1 |
| 200 | 260 | 190 | 31 | 3.1 |
| 250 | 350 | 275 | 49 | 5.5 |
| 300 | 400 | 315 | 69 | 7.5 |
| 350 | 450 | 360 | 96 | 10 |
| 400 | 500 | 405 | 126 | 12 |
| 450 | 550 | 450 | 160 | 15 |
| 500 | 600 | 490 | 210 | 18 |
| 600 | 700 | 580 | 324 | 26 |
| 700 | 800 | 685 | 423 | 40 |
| 800 | 900 | 785 | 571 | 52 |
| 900 | 1000 | 875 | 750 | 64 |
| 1000 | 1100 | 965 | 990 | 79 |
| 1100 | 1200 | 1055 | 1233 | 94 |
| 1200 | 1300 | 1145 | 1573 | 112 |
| 1400 | 1270 | 1075 | 1943 | 192 |
| 1600 | 1270 | 1075 | 2524 | 220 |

## Double Flange 22½° Bends Class K12

| DN | B | R approx. | *Weight Iron | *Weight CML |
|---|---|---|---|---|
| mm | mm | mm | Kg | Kg |
| 80 | 130 | 395 | 9.5 | 0.7 |
| 100 | 140 | 410 | 11.5 | 1.0 |
| 150 | 160 | 480 | 19 | 1.7 |
| 200 | 180 | 555 | 27 | 2.6 |
| 250 | 350 | 1370 | 55 | 6.5 |
| 300 | 400 | 1595 | 78 | 6.5 |
| 350 | 298 | 1050 | 83 | 8 |
| 400 | 324 | 1145 | 107 | 10 |
| 450 | 349 | 1240 | 135 | 11 |
| 500 | 375 | 1340 | 176 | 14 |
| 600 | 426 | 1535 | 267 | 19 |
| 700 | 478 | 1825 | 342 | 29 |
| 800 | 529 | 2080 | 448 | 37 |
| 900 | 581 | 2295 | 588 | 45 |
| 1000 | 632 | 2500 | 773 | 55 |
| 1100 | 683 | 2705 | 952 | 65 |
| 1200 | 735 | 2915 | 1213 | 76 |
| 1400 | 875 | 3300 | 1635 | 153 |
| 1600 | 940 | 3700 | 2325 | 197 |




* With PN16 flange. **Iron** - estimated minimum weight.
**CML** - additional estimated weight for cement mortar lining

## Double Flange 45° Bends Class K12

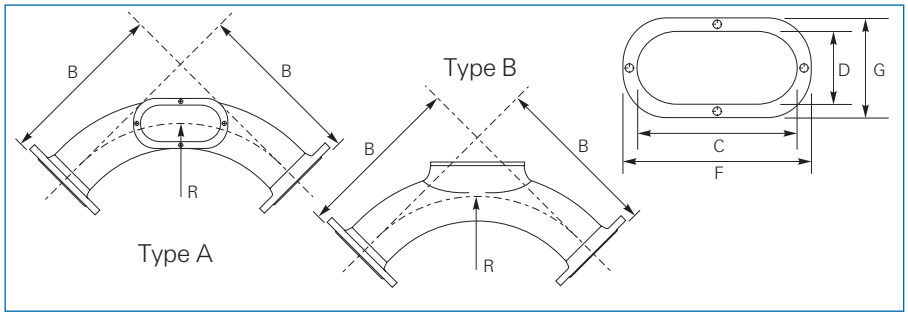
| DN | B | R approx. | *Weight Iron | *Weight CML |
|---|---|---|---|---|
| mm | mm | mm | Kg | Kg |
| 80 | 130 | 190 | 9.5 | 0.7 |
| 100 | 140 | 200 | 11.5 | 1.0 |
| 150 | 160 | 230 | 19 | 1.7 |
| 200 | 180 | 265 | 27 | 2.6 |
| 250 | 350 | 660 | 54 | 6.5 |
| 300 | 400 | 765 | 76 | 8.5 |
| 350 | 298 | 505 | 82 | 7.0 |
| 400 | 324 | 550 | 106 | 9.0 |
| 450 | 349 | 595 | 132 | 11 |
| 500 | 375 | 645 | 174 | 13 |
| 600 | 426 | 735 | 264 | 18 |
| 700 | 478 | 875 | 335 | 28 |
| 800 | 529 | 1000 | 444 | 36 |
| 900 | 581 | 1100 | 576 | 44 |
| 1000 | 632 | 1200 | 757 | 53 |
| 1100 | 683 | 1300 | 931 | 64 |
| 1200 | 735 | 1400 | 1187 | 74 |
| 1400 | 835 | 1600 | 1599 | 148 |
| 1600 | 940 | 1800 | 2273 | 190 |

## Double Flange 11 ¼° Bends Class K12

| DN | B | R approx. | *Weight Iron | *Weight CML |
|---|---|---|---|---|
| mm | mm | mm | Kg | Kg |
| 80 | 130 | 800 | 9.5 | 0.7 |
| 100 | 140 | 830 | 11.5 | 1.1 |
| 150 | 160 | 975 | 19 | 1.8 |
| 200 | 180 | 1115 | 28 | 2.6 |
| 250 | 350 | 2770 | 55 | 6.5 |
| 300 | 400 | 3220 | 78 | 8.5 |
| 350 | 298 | 2120 | 84 | 8 |
| 400 | 324 | 2315 | 108 | 10 |
| 450 | 349 | 2505 | 135 | 12 |
| 500 | 375 | 2710 | 177 | 14 |
| 600 | 426 | 3095 | 268 | 19 |
| 700 | 478 | 3685 | 343 | 29 |
| 800 | 529 | 4200 | 451 | 37 |
| 900 | 581 | 4630 | 592 | 46 |
| 1000 | 632 | 5045 | 778 | 55 |
| 1100 | 683 | 5460 | 957 | 66 |
| 1200 | 735 | 5890 | 1220 | 77 |
| 1400 | 835 | 6700 | 1643 | 154 |
| 1600 | 940 | 7600 | 2338 | 198 |

## Double Flange 90° Long Radius Bends with Cleaning Holes, Class K12

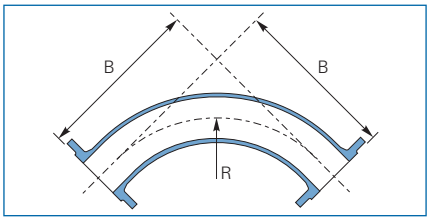
| DN | B | R approx. | C | D | F | G | Studs, nuts & washers | *Weight Iron | *Weight CML |
|---|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | mm | mm | mm | No. | Kg | Kg |
| 80 | 380 | 330 | 90 | 55 | 165 | 95 | 2 | 15 | 1.8 |
| 100 | 400 | 340 | 115 | 70 | 205 | 115 | 2 | 21 | 2.5 |
| 150 | 450 | 385 | 150 | 80 | 240 | 170 | 4 | 36 | 4.1 |
| 200 | 500 | 430 | 200 | 115 | 290 | 205 | 4 | 54.5 | 6 |
| 250 | 550 | 475 | 250 | 150 | 350 | 250 | 6 | 84.5 | 8.5 |
| 300 | 600 | 515 | 250 | 150 | 350 | 250 | 6 | 106 | 11 |
| 350 | 650 | 560 | 150 | 150 | 350 | 250 | 6 | 173 | 16 |
| 400 | 700 | 605 | 150 | 150 | 350 | 250 | 6 | 216 | 22 |
| 450 | 750 | 650 | 150 | 150 | 350 | 250 | 6 | 263 | 28 |
| 500 | 800 | 690 | 150 | 150 | 350 | 250 | 6 | 327 | 34 |
| 600 | 900 | 780 | 150 | 150 | 350 | 250 | 6 | 475 | 40 |




Maximum working pressure = 2 bar Recommended maximum site test pressure = 3.5 bar

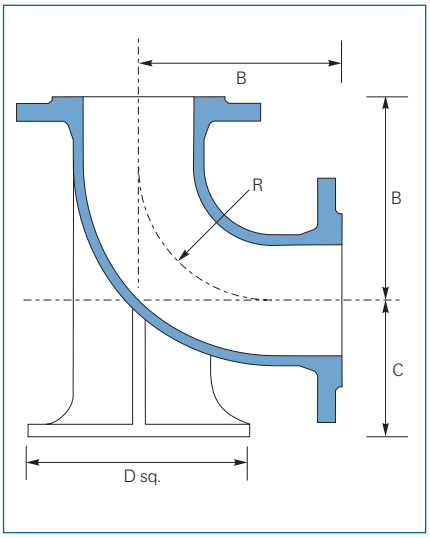
## DF 90° Long Radius Bends Class K12

| DN | B | R approx. | *Weight Iron | *Weight CML |
|---|---|---|---|---|
| mm | mm | mm | Kg | Kg |
| 80 | 380 | 330 | 14 | 1.8 |
| 100 | 400 | 340 | 18 | 2.5 |
| 150 | 450 | 385 | 30 | 4.1 |
| 200 | 500 | 430 | 46 | 6.0 |
| 250 | 550 | 475 | 65 | 8.5 |
| 300 | 600 | 515 | 90 | 11 |
| 350 | 650 | 560 | 121 | 14 |
| 400 | 700 | 605 | 157 | 17 |
| 450 | 750 | 650 | 197 | 20 |
| 500 | 800 | 690 | 252 | 24 |
| 600 | 900 | 780 | 379 | 33 |
| 700 | 100 | 880 | 670 | 56 |
| 800 | 1100 | 970 | 920 | 70 |
| 900 | 1200 | 1060 | 1195 | 80 |
| 1000 | 1300 | 1155 | 1556 | 98 |
| 1100 | 1400 | 1250 | 1940 | 118 |
| 1200 | 1500 | 1350 | 2420 | 130 |



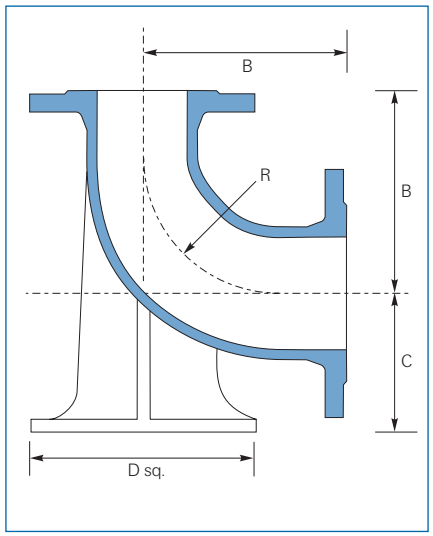
## Double Flanged 90° Duckfoot Bends, Class K12

| DN mm | B mm | R approx. mm | C mm | D mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|---|
| 80 | 165 | 115 | 110 | 180 | 14 | 0.8 |
| 100 | 180 | 120 | 125 | 200 | 18 | 1.2 |
| 150 | 220 | 155 | 160 | 250 | 31 | 2.1 |
| 200 | 260 | 190 | 190 | 300 | 47 | 3.1 |
| 250 | 350 | 275 | 225 | 350 | 76 | 5.5 |
| 300 | 400 | 315 | 255 | 400 | 108 | 7.5 |
| 350 | 450 | 360 | 290 | 450 | 147 | 10 |
| 400 | 500 | 405 | 320 | 500 | 196 | 12 |
| 450 | 550 | 450 | 355 | 550 | 246 | 15 |
| 500 | 600 | 490 | 385 | 600 | 322 | 18 |
| 600 | 700 | 580 | 450 | 700 | 493 | 26 |
| 700 | 800 | 685 | 515 | 800 | 586 | 40 |
| 800 | 900 | 785 | 580 | 900 | 798 | 52 |
| 900 | 1000 | 875 | 645 | 1000 | 1050 | 64 |
| 1000 | 1100 | 965 | 710 | 1100 | 1380 | 79 |
| 1100 | 1200 | 1055 | 775 | 1200 | 1656 | 94 |
| 1200 | 1300 | 1145 | 840 | 1300 | 2063 | 112 |
| 1400 | 1270 | 1075 | 970 | 1270 | 2926 | 192 |



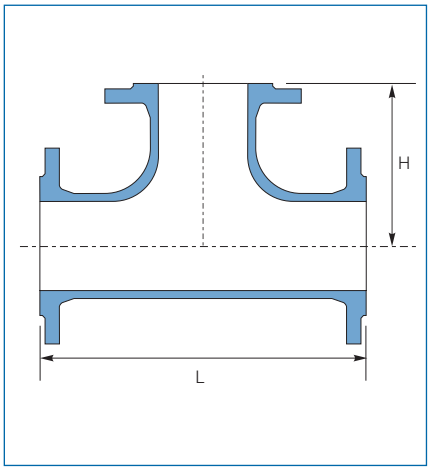

## Double Flanged 90° Hydrant Duckfoot Bends, Class K12

| DN Body mm | DN Branch mm | B mm | C mm | D mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|---|
| 80 | 80 | 165 | 110 | 180 | 14 | 0.8 |
| 100 | 80 | 180 | 125 | 200 | 17 | 1.2 |
| 150 | 80 | 220 | 160 | 200 | 28 | 2.0 |




## All Flanged Tees DN 80 - 450. Class K14

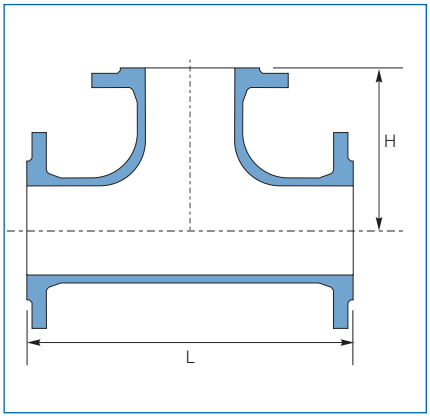
| DN Body mm | DN Branch mm | L mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|
| 80 | 80 | 330 | 165 | 15.6 | 1.3 |
| 100 | 80 | 360 | 175 | 18.4 | 1.7 |
| 100 | 100 | 360 | 180 | 19.3 | 1.9 |
| 150 | 80 | 440 | 205 | 28.5 | 2.8 |
| 150 | 100 | 440 | 210 | 29.5 | 3.0 |
| 150 | 150 | 440 | 220 | 32.5 | 3.3 |
| 200 | 80 | 520 | 235 | 41.5 | 4.3 |
| 200 | 100 | 520 | 240 | 42.5 | 4.4 |
| 200 | 150 | 520 | 250 | 45.5 | 4.7 |
| 200 | 200 | 520 | 260 | 49 | 5 |
| 250 | 80 | 700 | 265 | 65 | 7 |
| 250 | 100 | 700 | 275 | 67 | 7 |
| 250 | 150 | 700 | 300 | 70 | 7.5 |
| 250 | 200 | 700 | 325 | 75 | 8 |
| 250 | 250 | 700 | 350 | 81 | 8.5 |
| 300 | 80 | 800 | 290 | 91 | 9.5 |
| 300 | 100 | 800 | 300 | 93 | 9.5 |
| 300 | 150 | 800 | 325 | 95 | 10 |
| 300 | 200 | 800 | 350 | 101 | 11 |
| 300 | 250 | 800 | 375 | 108 | 11 |
| 300 | 300 | 800 | 400 | 117 | 12 |
| 350 | 80 | 850 | 325 | 120 | 11 |
| 350 | 100 | 850 | 325 | 122 | 12 |
| 350 | 150 | 850 | 325 | 123 | 12 |
| 350 | 200 | 850 | 325 | 128 | 12 |
| 350 | 250 | 850 | 325 | 132 | 12 |
| 350 | 300 | 850 | 425 | 144 | 14 |
| 350 | 350 | 850 | 425 | 153 | 14 |
| 400 | 80 | 900 | 350 | 152 | 14 |
| 400 | 100 | 900 | 350 | 154 | 14 |
| 400 | 150 | 900 | 350 | 155 | 14 |
| 400 | 200 | 900 | 350 | 159 | 14 |
| 400 | 250 | 900 | 350 | 161 | 15 |
| 400 | 300 | 900 | 450 | 177 | 16 |
| 400 | 350 | 900 | 450 | 185 | 17 |
| 400 | 400 | 900 | 450 | 194 | 17 |
| 450 | 80 | 950 | 375 | 187 | 16 |
| 450 | 100 | 950 | 375 | 188 | 16 |
| 450 | 150 | 950 | 375 | 190 | 17 |
| 450 | 200 | 950 | 375 | 193 | 17 |
| 450 | 250 | 950 | 375 | 197 | 17 |
| 450 | 300 | 950 | 475 | 213 | 19 |
| 450 | 350 | 950 | 475 | 221 | 19 |
| 450 | 400 | 950 | 475 | 229 | 19 |
| 450 | 450 | 950 | 475 | 237 | 20 |




* With PN16 flange. **Iron** - estimated minimum weight. **CML** - additional estimated weight for cement mortar lining.

## All Flanged Tees DN 500 - 800. Class K14

| DN Body mm | DN Branch mm | L mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|
| 500 | 80 | 1000 | 400 | 237 | 18 |
| 500 | 100 | 1000 | 400 | 241 | 19 |
| 500 | 150 | 1000 | 400 | 241 | 19 |
| 500 | 200 | 1000 | 400 | 245 | 19 |
| 500 | 250 | 1000 | 400 | 246 | 20 |
| 500 | 300 | 1000 | 500 | 258 | 21 |
| 500 | 350 | 1000 | 500 | 274 | 21 |
| 500 | 400 | 1000 | 500 | 284 | 21 |
| 500 | 450 | 1000 | 500 | 290 | 21 |
| 500 | 500 | 1000 | 500 | 304 | 21 |
| 600 | 80 | 1100 | 450 | 349 | 25 |
| 600 | 100 | 1100 | 450 | 350 | 25 |
| 600 | 150 | 1100 | 450 | 352 | 25 |
| 600 | 200 | 1100 | 450 | 358 | 26 |
| 600 | 250 | 1100 | 450 | 358 | 26 |
| 600 | 300 | 1100 | 550 | 369 | 27 |
| 600 | 350 | 1100 | 550 | 376 | 27 |
| 600 | 400 | 1100 | 550 | 401 | 27 |
| 600 | 450 | 1100 | 550 | 404 | 27 |
| 600 | 500 | 1100 | 550 | 408 | 27 |
| 600 | 600 | 1100 | 550 | 447 | 28 |
| 700 | 80** | 600 | 390 | 261 | 18 |
| 700 | 100** | 600 | 395 | 263 | 18 |
| 700 | 150** | 600 | 395 | 265 | 19 |
| 700 | 200 | 650 | 525 | 299 | 21 |
| 700 | 250 | 720 | 530 | 322 | 24 |
| 700 | 300 | 780 | 530 | 342 | 26 |
| 700 | 350 | 830 | 555 | 363 | 27 |
| 700 | 400 | 870 | 555 | 379 | 28 |
| 700 | 450 | 920 | 560 | 401 | 30 |
| 700 | 500 | 990 | 560 | 448 | 32 |
| 700 | 600 | 1200 | 590 | 536 | 40 |
| 700 | 700 | 1200 | 600 | 548 | 41 |
| 800 | 80** | 670 | 440 | 340 | 24 |
| 800 | 100** | 670 | 445 | 342 | 24 |
| 800 | 150** | 670 | 445 | 344 | 24 |
| 800 | 200** | 690 | 585 | 384 | 26 |
| 800 | 250 | 770 | 585 | 414 | 29 |
| 800 | 300 | 820 | 585 | 435 | 31 |
| 800 | 350 | 880 | 600 | 461 | 32 |
| 800 | 400 | 910 | 615 | 478 | 34 |
| 800 | 450 | 980 | 615 | 508 | 36 |
| 800 | 500 | 1030 | 620 | 538 | 38 |
| 800 | 600 | 1350 | 645 | 699 | 50 |
| 800 | 700 | 1350 | 645 | 706 | 52 |
| 800 | 800 | 1350 | 675 | 741 | 53 |




## All Flanged Tees DN 900 - 1100. Class K14

| DN Body mm | DN Branch mm | L mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|
| 900 | 80** | 720 | 490 | 432 | 28 |
| 900 | 100** | 720 | 495 | 434 | 28 |
| 900 | 150** | 720 | 495 | 436 | 29 |
| 900 | 200** | 730 | 495 | 440 | 29 |
| 900 | 250 | 820 | 645 | 522 | 34 |
| 900 | 300 | 880 | 650 | 550 | 37 |
| 900 | 350 | 930 | 655 | 576 | 38 |
| 900 | 400 | 950 | 675 | 591 | 39 |
| 900 | 450 | 1030 | 680 | 630 | 42 |
| 900 | 500 | 1080 | 680 | 662 | 44 |
| 900 | 600 | 1500 | 705 | 898 | 62 |
| 900 | 700 | 1500 | 705 | 904 | 63 |
| 900 | 800 | 1500 | 720 | 932 | 64 |
| 900 | 900 | 1500 | 750 | 974 | 66 |
| 1000 | 80** | 770 | 545 | 561 | 34 |
| 1000 | 100** | 770 | 550 | 563 | 34 |
| 1000 | 150** | 770 | 705 | 565 | 35 |
| 1000 | 200** | 770 | 705 | 567 | 35 |
| 1000 | 250 | 880 | 710 | 677 | 41 |
| 1000 | 300 | 930 | 710 | 703 | 43 |
| 1000 | 350 | 980 | 725 | 733 | 45 |
| 1000 | 400 | 990 | 735 | 746 | 45 |
| 1000 | 450 | 1080 | 745 | 798 | 50 |
| 1000 | 500 | 1130 | 755 | 833 | 52 |
| 1000 | 600 | 1650 | 765 | 1107 | 75 |
| 1000 | 700 | 1650 | 765 | 1167 | 77 |
| 1000 | 800 | 1650 | 770 | 1189 | 77 |
| 1000 | 900 | 1650 | 800 | 1231 | 79 |
| 1000 | 1000 | 1650 | 825 | 1289 | 81 |
| 1100 | 80** | 800 | 959 | 669 | 39 |
| 1100 | 100** | 800 | 600 | 671 | 39 |
| 1100 | 150** | 800 | 600 | 672 | 39 |
| 1100 | 200** | 850 | 600 | 687 | 41 |
| 1100 | 250 | 900 | 760 | 798 | 45 |
| 1100 | 300 | 950 | 760 | 829 | 48 |
| 1100 | 350 | 1000 | 760 | 861 | 50 |
| 1100 | 400 | 1050 | 770 | 895 | 52 |
| 1100 | 450 | 1100 | 780 | 929 | 55 |
| 1100 | 500 | 1150 | 790 | 970 | 58 |
| 1100 | 600 | 1250 | 800 | 1066 | 63 |
| 1100 | 700 | 1350 | 800 | 1124 | 69 |
| 1100 | 800 | 1450 | 820 | 1282 | 74 |
| 1100 | 900 | 1550 | 840 | 1372 | 80 |
| 1100 | 1000 | 1650 | 875 | 1487 | 87 |
| 1100 | 1100 | 1780 | 890 | 1642 | 95 |

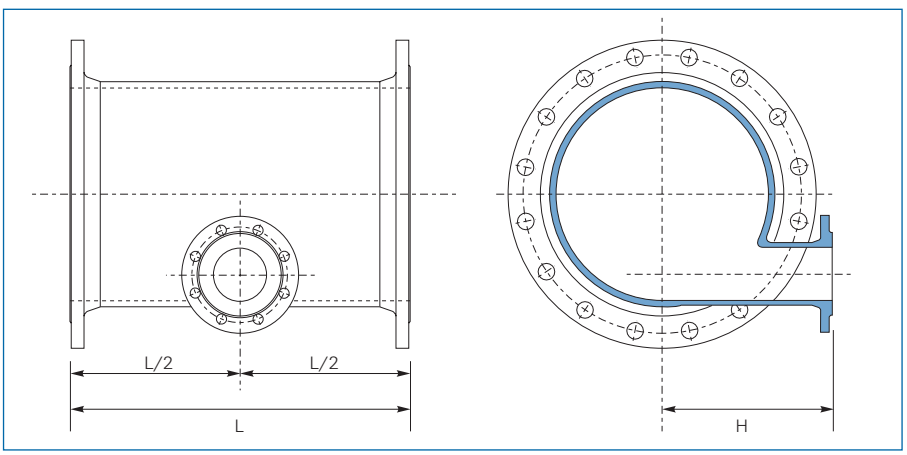
## All Flanged Tees DN 1200 - 1600. Class K14

| DN Body mm | DN Branch mm | L mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|
| 1200 | 80** | 800 | 645 | 824 | 42 |
| 1200 | 100** | 800 | 650 | 826 | 42 |
| 1200 | 150** | 800 | 650 | 828 | 43 |
| 1200 | 200** | 850 | 650 | 848 | 45 |
| 1200 | 250 | 900 | 825 | 973 | 50 |
| 1200 | 300 | 950 | 825 | 1009 | 53 |
| 1200 | 350 | 1000 | 825 | 1046 | 54 |
| 1200 | 400 | 1070 | 855 | 1099 | 59 |
| 1200 | 450 | 1100 | 850 | 1124 | 60 |
| 1200 | 500 | 1150 | 860 | 1168 | 63 |
| 1200 | 600 | 1250 | 885 | 1259 | 69 |
| 1200 | 700 | 1350 | 885 | 1329 | 76 |
| 1200 | 800 | 1450 | 885 | 1515 | 81 |
| 1200 | 900 | 1550 | 900 | 1610 | 87 |
| 1200 | 1000 | 1680 | 935 | 1734 | 96 |
| 1200 | 1100 | 1780 | 940 | 1836 | 102 |
| 1200 | 1200 | 1950 | 975 | 2055 | 114 |
| 1400 | 80** | 1150 | 745 | 1281 | 106 |
| 1400 | 100** | 1150 | 750 | 1285 | 106 |
| 1400 | 150** | 1150 | 760 | 1298 | 106 |
| 1400 | 200** | 1150 | 760 | 1308 | 106 |
| 1400 | 250** | 1150 | 760 | 1320 | 106 |
| 1400 | 300 | 1150 | 960 | 1421 | 106 |
| 1400 | 350 | 1150 | 960 | 1426 | 108 |
| 1400 | 400 | 1200 | 960 | 1472 | 112 |
| 1400 | 450 | 1250 | 960 | 1519 | 117 |
| 1400 | 500 | 1300 | 960 | 1572 | 121 |
| 1400 | 600 | 1400 | 1000 | 1692 | 131 |
| 1400 | 700 | 1500 | 1000 | 1772 | 141 |
| 1400 | 800 | 1600 | 1010 | 1877 | 150 |
| 1400 | 900 | 1700 | 1030 | 1992 | 160 |
| 1400 | 1000 | 1800 | 1070 | 2133 | 171 |
| 1400 | 1100 | 1900 | 1070 | 2250 | 180 |
| 1400 | 1200 | 2000 | 1100 | 2433 | 191 |
| 1400 | 1400 | 2250 | 1125 | 2730 | 229 |
| 1600 | 80** | 1150 | 845 | 1686 | 122 |
| 1600 | 100** | 1150 | 850 | 1689 | 122 |
| 1600 | 150** | 1150 | 860 | 1702 | 121 |
| 1600 | 200** | 1150 | 860 | 1713 | 121 |
| 1600 | 250 | 1150 | 860 | 1726 | 121 |
| 1600 | 300 | 1150 | 1080 | 1861 | 125 |
| 1600 | 350 | 1200 | 1080 | 1919 | 128 |
| 1600 | 400 | 1250 | 1080 | 1976 | 134 |
| 1600 | 450 | 1300 | 1080 | 2034 | 139 |
| 1600 | 500 | 1350 | 1080 | 2089 | 144 |
| 1600 | 600 | 1450 | 1125 | 2240 | 155 |
| 1600 | 700 | 1550 | 1125 | 2420 | 167 |
| 1600 | 800 | 1650 | 1140 | 2522 | 178 |
| 1600 | 900 | 1750 | 1160 | 2603 | 188 |
| 1600 | 1000 | 1850 | 1200 | 2765 | 200 |
| 1600 | 1100 | 1950 | 1200 | 2903 | 211 |
| 1600 | 1200 | 2050 | 1225 | 3105 | 223 |
| 1600 | 1400 | 2300 | 1225 | 3428 | 262 |
| 1600 | 1600 | 2500 | 1225 | 3578 | 283 |

* With PN16 flange. **Iron** - estimated minimum weight. **CML** - additional estimated weight for cement mortar lining.
** These fittings may be supplied with a facing instead of a branch at the discretion of the manufacturer

## All Flanged Level Invert Tees, Class K14

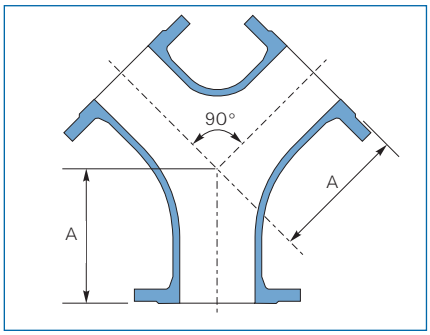
| DN Body mm | DN Branch mm | L mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|
| 100 | 80 | 360 | 195 | 19.5 | 1.8 |
| 150 | 80 | 440 | 220 | 29.5 | 2.9 |
| 200 | 80 | 520 | 250 | 42.5 | 4.4 |
| 200 | 100 | 520 | 250 | 43.5 | 4.5 |
| 250 | 80 | 700 | 275 | 66 | 7 |
| 250 | 100 | 700 | 275 | 68 | 7 |
| 300 | 80 | 800 | 305 | 92 | 9.5 |
| 300 | 100 | 800 | 305 | 95.5 | 10 |
| 300 | 150 | 800 | 305 | 99 | 10 |
| 350 | 80 | 850 | 340 | 121 | 12 |
| 350 | 100 | 850 | 340 | 123 | 12 |
| 350 | 150 | 850 | 340 | 128 | 12 |
| 400 | 80 | 900 | 365 | 153 | 14 |
| 400 | 100 | 900 | 365 | 156 | 14 |
| 400 | 150 | 900 | 365 | 162 | 14 |
| 400 | 200 | 900 | 365 | 167 | 15 |
| 450 | 80 | 950 | 380 | 188 | 17 |
| 450 | 100 | 950 | 380 | 189 | 17 |
| 450 | 150 | 950 | 380 | 197 | 17 |
| 450 | 200 | 950 | 380 | 202 | 17 |
| 500 | 80 | 1000 | 400 | 237 | 19 |
| 500 | 100 | 1000 | 400 | 241 | 19 |
| 500 | 150 | 1000 | 400 | 248 | 19 |
| 500 | 200 | 1000 | 400 | 255 | 20 |
| 600 | 80 | 1100 | 435 | 350 | 25 |
| 600 | 100 | 1100 | 435 | 351 | 25 |
| 600 | 150 | 1100 | 450 | 360 | 26 |
| 600 | 200 | 1100 | 450 | 370 | 26 |
| 700 | 150 | 600 | 500 | 262 | 20 |
| 700 | 200 | 650 | 500 | 268 | 22 |
| 800 | 150 | 670 | 540 | 379 | 25 |
| 800 | 200 | 690 | 540 | 388 | 26 |
| 900 | 150 | 720 | 580 | 481 | 30 |
| 900 | 200 | 730 | 580 | 483 | 31 |
| 1000 | 150 | 770 | 630 | 625 | 36 |
| 1000 | 200 | 770 | 630 | 627 | 36 |
| 1100 | 150 | 800 | 660 | 743 | 41 |
| 1100 | 200 | 850 | 660 | 773 | 44 |
| 1200 | 150 | 800 | 700 | 910 | 45 |
| 1200 | 200 | 850 | 700 | 945 | 48 |




* With PN16 flange. **Iron** - estimated minimum weight. **CML** - additional estimated weight for cement mortar lining.

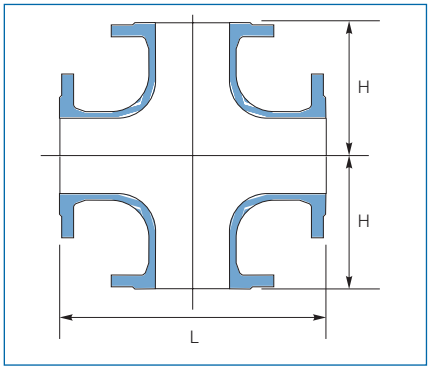
## All Flanged 'Y's DN 350 Class K14

| DN mm | A mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|
| 80 | 165 | 15.6 | 1.3 |
| 100 | 180 | 19.3 | 1.7 |
| 150 | 220 | 32.5 | 3 |
| 200 | 260 | 49 | 4.8 |
| 250 | 350 | 81 | 8 |
| 300 | 400 | 115 | 12 |
| 350 | 450 | 166 | 14 |
| 400 | 500 | 231 | 16 |
| 450 | 550 | 295 | 20 |
| 500 | 600 | 385 | 23 |
| 600 | 700 | 591 | 36 |




## All Flanged Equal Crosses DN 350, Class K14

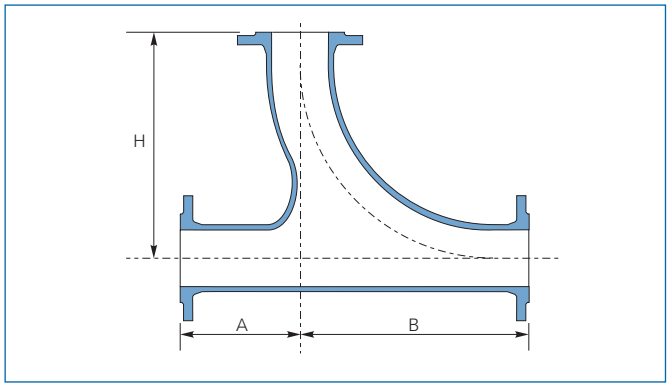
| DN mm | L mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|
| 80 | 330 | 165 | 20.5 | 1.7 |
| 100 | 360 | 180 | 24.5 | 2.2 |
| 150 | 440 | 220 | 41 | 3.8 |
| 200 | 520 | 260 | 61 | 6 |
| 250 | 700 | 350 | 99.5 | 10 |
| 300 | 800 | 400 | 142 | 13 |
| 350 | 850 | 425 | 198 | 16 |
| 400 | 900 | 450 | 247 | 17 |
| 450 | 950 | 475 | 300 | 21 |
| 500 | 1000 | 500 | 386 | 26 |
| 600 | 1100 | 550 | 556 | 34 |
| 700 | 1200 | 600 | 930 | 60 |
| 800 | 1350 | 675 | 1240 | 72 |
| 900 | 1500 | 750 | 1620 | 96 |
| 1000 | 1650 | 825 | 2240 | 110 |
| 1100 | 1780 | 890 | 2870 | 140 |
| 1200 | 1950 | 975 | 3540 | 176 |
| 1400 | 2500 | 1225 | 4280 | 208 |




- For Crosses and 'Y's DN 400 and above
  Max working pressure: 10 bar
  Recommended max site test pressure: 16 bar

## All Flanged Radial Tees, DN 80 - 450
## Class K14 u.t.i DN 350

| DN Body mm | DN Branch mm | A mm | B mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|---|
| 80 | 80 | 165 | 380 | 380 | 24 | 2.8 |
| 100 | 80 | 180 | 390 | 390 | 28 | 3.5 |
| 100 | 100 | 180 | 400 | 400 | 31 | 4.0 |
| 150 | 80 | 220 | 395 | 415 | 40 | 5.2 |
| 150 | 100 | 220 | 405 | 425 | 43 | 5.6 |
| 150 | 150 | 220 | 450 | 450 | 52 | 6.5 |
| 200 | 80 | 220 | 400 | 440 | 53 | 6.9 |
| 200 | 100 | 220 | 410 | 450 | 56 | 7.3 |
| 200 | 150 | 260 | 455 | 475 | 67 | 8.5 |
| 200 | 200 | 260 | 500 | 500 | 80 | 10 |
| 250 | 80 | 220 | 405 | 465 | 70 | 8.5 |
| 250 | 100 | 220 | 415 | 475 | 74 | 9 |
| 250 | 150 | 300 | 460 | 500 | 91 | 11 |
| 250 | 200 | 300 | 505 | 525 | 104 | 12 |
| 250 | 250 | 350 | 550 | 550 | 124 | 13 |
| 300 | 80 | 220 | 415 | 490 | 90 | 10 |
| 300 | 100 | 300 | 425 | 500 | 101 | 11 |
| 300 | 150 | 300 | 470 | 525 | 114 | 12 |
| 300 | 200 | 400 | 515 | 550 | 137 | 14 |
| 300 | 250 | 400 | 560 | 575 | 154 | 18 |
| 300 | 300 | 400 | 600 | 600 | 174 | 18 |
| 350 | 100 | 300 | 430 | 525 | 126 | 12 |
| 350 | 150 | 300 | 475 | 550 | 140 | 13 |
| 350 | 200 | 400 | 520 | 575 | 166 | 15 |
| 350 | 250 | 400 | 565 | 600 | 185 | 17 |
| 350 | 300 | 400 | 605 | 625 | 206 | 19 |
| 350 | 350 | 450 | 650 | 650 | 235 | 22 |
| 400 | 100 | 300 | 435 | 550 | 160 | 13 |
| 400 | 150 | 300 | 480 | 575 | 170 | 14 |
| 400 | 200 | 400 | 525 | 600 | 200 | 16 |
| 400 | 250 | 400 | 570 | 625 | 218 | 17 |
| 400 | 300 | 450 | 610 | 650 | 246 | 19 |
| 400 | 350 | 450 | 655 | 675 | 272 | 22 |
| 400 | 400 | 500 | 700 | 700 | 307 | 25 |
| 450 | 100 | 300 | 440 | 575 | 185 | 15 |
| 450 | 150 | 300 | 485 | 600 | 197 | 16 |
| 450 | 200 | 400 | 530 | 625 | 230 | 18 |
| 450 | 250 | 450 | 575 | 650 | 260 | 21 |
| 450 | 300 | 450 | 615 | 675 | 282 | 23 |
| 450 | 350 | 450 | 660 | 700 | 310 | 25 |
| 450 | 400 | 550 | 705 | 725 | 355 | 28 |
| 450 | 450 | 550 | 750 | 750 | 387 | 31 |




- For radial tees DN 400 and above
  Max working pressure: 10 bar
  Recommended max site test pressure: 16 bar

* With PN16 flange
Iron - estimated minimum weight
CML - additional estimated weight for cement mortar lining

## All Flanged Radial Tees, DN 500-1200

| DN Body mm | DN Branch mm | A mm | B mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|---|
| 500 | 150 | 300 | 495 | 625 | 241 | 19 |
| 500 | 200 | 400 | 540 | 650 | 278 | 22 |
| 500 | 250 | 450 | 585 | 675 | 310 | 25 |
| 500 | 300 | 450 | 625 | 700 | 335 | 27 |
| 500 | 350 | 450 | 670 | 725 | 364 | 29 |
| 500 | 400 | 550 | 715 | 750 | 413 | 33 |
| 500 | 450 | 550 | 760 | 775 | 446 | 35 |
| 500 | 500 | 600 | 800 | 800 | 497 | 40 |
| 600 | 150 | 330 | 505 | 675 | 330 | 23 |
| 600 | 200 | 400 | 550 | 700 | 375 | 26 |
| 600 | 250 | 450 | 595 | 725 | 413 | 29 |
| 600 | 300 | 450 | 635 | 750 | 441 | 31 |
| 600 | 350 | 450 | 680 | 775 | 473 | 33 |
| 600 | 400 | 550 | 725 | 800 | 532 | 37 |
| 600 | 450 | 600 | 770 | 825 | 580 | 41 |
| 600 | 500 | 600 | 810 | 850 | 626 | 44 |
| 600 | 600 | 700 | 900 | 900 | 748 | 52 |
| 700 | 200 | 400 | 550 | 750 | 500 | 33 |
| 700 | 250 | 450 | 595 | 775 | 554 | 36 |
| 700 | 300 | 450 | 635 | 800 | 591 | 38 |
| 700 | 350 | 450 | 680 | 825 | 632 | 41 |
| 700 | 400 | 550 | 725 | 850 | 715 | 46 |
| 700 | 450 | 600 | 770 | 875 | 779 | 51 |
| 700 | 500 | 600 | 810 | 900 | 835 | 54 |
| 700 | 600 | 700 | 900 | 950 | 995 | 65 |
| 700 | 700 | 800 | 1000 | 1000 | 1154 | 75 |
| 800 | 250 | 450 | 595 | 825 | 678 | 41 |
| 800 | 300 | 450 | 635 | 850 | 719 | 43 |
| 800 | 350 | 450 | 680 | 875 | 765 | 46 |
| 800 | 400 | 550 | 725 | 900 | 861 | 52 |
| 800 | 450 | 600 | 770 | 925 | 934 | 56 |
| 800 | 500 | 600 | 810 | 950 | 995 | 60 |
| 800 | 600 | 700 | 900 | 1000 | 1174 | 71 |
| 800 | 700 | 800 | 1000 | 1050 | 1353 | 81 |
| 800 | 800 | 900 | 1100 | 1100 | 1565 | 94 |
| 900 | 300 | 450 | 640 | 900 | 851 | 47 |
| 900 | 350 | 450 | 685 | 925 | 907 | 50 |
| 900 | 400 | 550 | 730 | 950 | 1013 | 55 |
| 900 | 450 | 600 | 775 | 975 | 1101 | 60 |
| 900 | 500 | 600 | 815 | 1000 | 1167 | 65 |
| 900 | 600 | 700 | 905 | 1050 | 1366 | 75 |
| 900 | 700 | 800 | 1005 | 1100 | 1568 | 85 |
| 900 | 800 | 900 | 1105 | 1150 | 1802 | 99 |
| 900 | 900 | 1000 | 1200 | 1200 | 2047 | 113 |
| 1000 | 350 | 450 | 695 | 975 | 1103 | 55 |
| 1000 | 400 | 550 | 740 | 1000 | 1224 | 61 |
| 1000 | 450 | 600 | 785 | 1025 | 1323 | 64 |
| 1000 | 500 | 600 | 825 | 1050 | 1394 | 69 |
| 1000 | 600 | 700 | 915 | 1100 | 1616 | 81 |
| 1000 | 700 | 800 | 1015 | 1150 | 1841 | 92 |
| 1000 | 800 | 900 | 1115 | 1200 | 2099 | 105 |
| 1000 | 900 | 1000 | 1210 | 1250 | 2369 | 118 |
| 1000 | 1000 | 1100 | 1300 | 1300 | 2676 | 133 |
| 1100 | 400 | 550 | 750 | 1050 | 1416 | 71 |
| 1100 | 450 | 600 | 795 | 1075 | 1528 | 76 |
| 1100 | 500 | 600 | 835 | 1100 | 1605 | 80 |
| 1100 | 600 | 700 | 925 | 1150 | 1851 | 92 |
| 1100 | 700 | 800 | 1025 | 1200 | 2101 | 105 |
| 1100 | 800 | 900 | 1125 | 1250 | 2385 | 119 |
| 1100 | 900 | 1000 | 1220 | 1300 | 2678 | 134 |
| 1100 | 1000 | 1100 | 1310 | 1350 | 3012 | 151 |
| 1100 | 1100 | 1200 | 1400 | 1100 | 3353 | 167 |
| 1200 | 450 | 600 | 805 | 1125 | 1793 | 89 |
| 1200 | 500 | 600 | 845 | 1150 | 1877 | 94 |
| 1200 | 600 | 700 | 935 | 1200 | 2148 | 107 |
| 1200 | 700 | 800 | 1035 | 1250 | 2425 | 121 |
| 1200 | 800 | 900 | 1135 | 1300 | 2736 | 136 |
| 1200 | 900 | 1000 | 1230 | 1350 | 3056 | 153 |
| 1200 | 1000 | 1100 | 1320 | 1400 | 3417 | 177 |
| 1200 | 1100 | 1200 | 1410 | 1450 | 3785 | 189 |
| 1200 | 1200 | 1300 | 1500 | 1500 | 4200 | 210 |

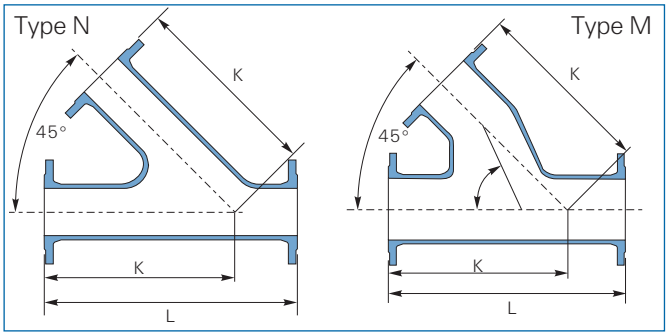
14

## All Flanged Angle Branches, DN 80 - 600 Class K14

| DN | | Type | | | *Weight | |
|---|---|---|---|---|---|---|
| Body | Branch | | L | K | Iron | CML |
| mm | mm | | mm | mm | Kg | Kg |
| 80 | 80 | N | 500 | 375 | 23 | 2.3 |
| 100 | 80 | N | 500 | 390 | 27 | 2.8 |
| 100 | 100 | N | 540 | 405 | 30 | 3.2 |
| 150 | 80 | N | 590 | 480 | 41 | 4.3 |
| 150 | 100 | N | 640 | 480 | 45 | 4.7 |
| 150 | 150 | N | 640 | 480 | 52 | 5.5 |
| 200 | 80 | N | 635 | 535 | 55 | 5.8 |
| 200 | 100 | N | 635 | 535 | 58 | 6.1 |
| 200 | 150 | N | 735 | 560 | 71 | 7.5 |
| 200 | 200 | N | 735 | 560 | 81 | 8.5 |
| 250 | 80 | N | 660 | 585 | 75 | 7.1 |
| 250 | 100 | N | 710 | 610 | 82 | 7.8 |
| 250 | 150 | N | 830 | 640 | 100 | 9.5 |
| 250 | 200 | N | 830 | 640 | 112 | 10.5 |
| 250 | 250 | N | 830 | 640 | 126 | 12 |
| 300 | 80 | N | 685 | 610 | 97 | 8 |
| 300 | 100 | N | 685 | 610 | 100 | 8.5 |
| 300 | 150 | N | 790 | 660 | 120 | 10 |
| 300 | 200 | N | 865 | 685 | 140 | 12 |
| 300 | 250 | N | 930 | 715 | 161 | 13.5 |
| 300 | 300 | N | 930 | 715 | 177 | 15 |
| 350 | 100 | N | 685 | 635 | 124 | 12 |
| 350 | 150 | N | 740 | 660 | 140 | 14 |
| 350 | 200 | N | 840 | 710 | 165 | 17 |
| 350 | 250 | N | 880 | 740 | 185 | 19 |
| 350 | 300 | M | 880 | 790 | 207 | 21 |
| 350 | 350 | M | 880 | 790 | 168 | 17 |
| 400 | 100 | N | 760 | 710 | 165 | 13 |
| 400 | 150 | N | 815 | 740 | 180 | 15 |
| 400 | 200 | N | 865 | 760 | 200 | 16 |
| 400 | 250 | N | 970 | 820 | 230 | 18 |
| 400 | 300 | M | 970 | 870 | 254 | 20 |
| 400 | 350 | M | 970 | 870 | 283 | 23 |
| 400 | 400 | M | 970 | 870 | 310 | 25 |
| 450 | 100 | N | 740 | 710 | 185 | 13 |
| 450 | 150 | N | 840 | 760 | 211 | 15 |
| 450 | 200 | N | 890 | 790 | 233 | 17 |
| 450 | 250 | N | 990 | 820 | 272 | 19 |
| 450 | 300 | M | 1040 | 900 | 298 | 21 |
| 450 | 350 | M | 1060 | 950 | 338 | 24 |
| 450 | 400 | M | 1060 | 950 | 366 | 26 |
| 450 | 450 | M | 1060 | 950 | 392 | 28 |
| 500 | 150 | N | 790 | 765 | 245 | 15 |
| 500 | 200 | N | 890 | 810 | 278 | 17 |
| 500 | 250 | N | 940 | 840 | 304 | 18 |
| 500 | 300 | M | 990 | 865 | 334 | 20 |
| 500 | 350 | M | 1065 | 950 | 389 | 23 |
| 500 | 400 | M | 1140 | 1025 | 439 | 26 |
| 500 | 450 | M | 1140 | 1025 | 468 | 28 |
| 500 | 500 | M | 1140 | 1025 | 505 | 30 |
| 600 | 150 | N | 890 | 840 | 354 | 18 |
| 600 | 200 | N | 940 | 890 | 382 | 19 |
| 600 | 250 | N | 990 | 915 | 413 | 21 |
| 600 | 300 | M | 1090 | 965 | 460 | 23 |
| 600 | 350 | M | 1160 | 1000 | 520 | 26 |
| 600 | 400 | M | 1230 | 1035 | 568 | 28 |
| 600 | 450 | M | 1295 | 1070 | 618 | 31 |
| 600 | 500 | M | 1310 | 1180 | 680 | 34 |
| 600 | 600 | M | 1310 | 1180 | 768 | 38 |

## All Flanged Angle Branches, DN 700 - 1200 Class K14

| DN | | Type | | | *Weight | |
|---|---|---|---|---|---|---|
| Body | Branch | | L | K | Iron | CML |
| mm | mm | | mm | mm | Kg | Kg |
| 700 | 200 | N | 1040 | 1015 | 547 | 27 |
| 700 | 250 | N | 1070 | 1040 | 582 | 29 |
| 700 | 300 | N | 1170 | 1090 | 649 | 32 |
| 700 | 350 | M | 1240 | 1125 | 708 | 35 |
| 700 | 400 | M | 1310 | 1160 | 772 | 39 |
| 700 | 450 | M | 1370 | 1195 | 860 | 43 |
| 700 | 500 | M | 1440 | 1240 | 945 | 47 |
| 700 | 600 | M | 1570 | 1370 | 1133 | 57 |
| 700 | 700 | M | 1570 | 1370 | 1240 | 62 |
| 800 | 250 | N | 1180 | 1150 | 760 | 31 |
| 800 | 300 | N | 1200 | 1170 | 800 | 33 |
| 800 | 350 | N | 1270 | 1205 | 867 | 35 |
| 800 | 400 | M | 1340 | 1240 | 938 | 37 |
| 800 | 450 | M | 1400 | 1270 | 1009 | 41 |
| 800 | 500 | M | 1470 | 1305 | 1128 | 45 |
| 800 | 600 | M | 1600 | 1370 | 1314 | 52 |
| 800 | 700 | M | 1660 | 1450 | 1476 | 60 |
| 800 | 800 | M | 1720 | 1520 | 1674 | 66 |
| 900 | 300 | N | 1270 | 1245 | 980 | 30 |
| 900 | 350 | N | 1340 | 1280 | 1056 | 33 |
| 900 | 400 | N | 1410 | 1315 | 1136 | 35 |
| 900 | 450 | M | 1350 | 1350 | 1218 | 37 |
| 900 | 500 | M | 1560 | 1390 | 1322 | 41 |
| 900 | 600 | M | 1730 | 1475 | 1590 | 48 |
| 900 | 700 | M | 1780 | 1540 | 1757 | 53 |
| 900 | 800 | M | 1830 | 1610 | 1964 | 59 |
| 900 | 900 | M | 1880 | 1680 | 2194 | 66 |
| 1000 | 350 | N | 1415 | 1380 | 1320 | 39 |
| 1000 | 400 | N | 1485 | 1415 | 1408 | 42 |
| 1000 | 450 | N | 1550 | 1450 | 1500 | 45 |
| 1000 | 500 | M | 1680 | 1510 | 1647 | 49 |
| 1000 | 600 | M | 1800 | 1575 | 1915 | 57 |
| 1000 | 700 | M | 1930 | 1640 | 2144 | 64 |
| 1000 | 800 | M | 2060 | 1700 | 2410 | 72 |
| 1000 | 900 | M | 2180 | 1980 | 2812 | 84 |
| 1000 | 1000 | M | 2180 | 1980 | 3052 | 90 |
| 1100 | 400 | N | 1560 | 1515 | 1677 | 50 |
| 1100 | 450 | N | 1625 | 1550 | 1777 | 53 |
| 1100 | 500 | M | 1730 | 1600 | 1922 | 57 |
| 1100 | 600 | M | 1830 | 1650 | 2200 | 66 |
| 1100 | 700 | M | 1980 | 1790 | 2490 | 75 |
| 1100 | 800 | M | 2120 | 1930 | 2827 | 85 |
| 1100 | 900 | M | 2265 | 2065 | 3205 | 96 |
| 1100 | 1000 | M | 2265 | 2065 | 3452 | 104 |
| 1100 | 1100 | M | 2265 | 2065 | 3703 | 111 |
| 1200 | 450 | N | 1780 | 1700 | 2210 | 66 |
| 1200 | 500 | N | 1880 | 1750 | 2367 | 71 |
| 1200 | 600 | M | 1980 | 1855 | 2695 | 81 |
| 1200 | 700 | M | 2125 | 1920 | 2988 | 90 |
| 1200 | 800 | M | 2270 | 1990 | 3330 | 100 |
| 1200 | 900 | M | 2415 | 2060 | 3693 | 111 |
| 1200 | 1000 | M | 2480 | 2280 | 4136 | 124 |
| 1200 | 1100 | M | 2480 | 2280 | 4410 | 132 |
| 1200 | 1200 | M | 2480 | 2280 | 4728 | 142 |




* With PN16 flange. **Iron** - estimated minimum weight. **CML** - additional estimated weight for cement mortar lining.
For 45° Angle Branches of DN 400 and above - Maximum working pressure = 10 bar. Recommended maximum site test pressure = 16 bar

## Double Flanged Tapers, Concentric and Flat DN 80 - 350, Class K12

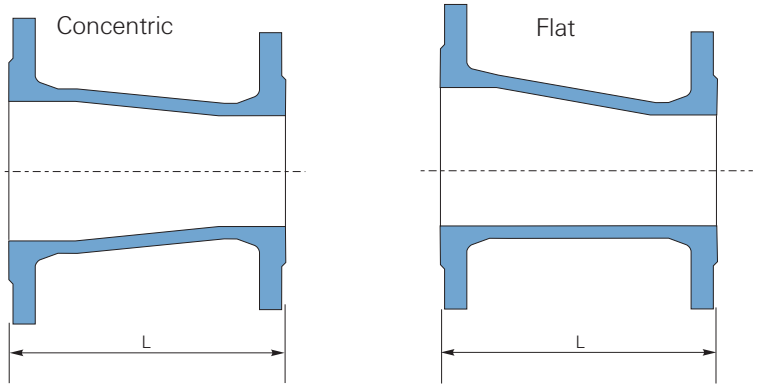
| DN Large mm | DN Small mm | L mm | *Weight Iron Kg | *Weight *CML Kg |
|---|---|---|---|---|
| 80 | 50 | 200 | 7.3 | 0.5 |
| 100 | 50 | 300 | 9.4 | 0.8 |
| 100 | 80 | 200 | 9.3 | 0.7 |
| 150 | 80 | 400 | 16.1 | 1.7 |
| 150 | 100 | 300 | 15 | 1.4 |
| 200 | 80 | 600 | 25.5 | 3.1 |
| 200 | 100 | 600 | 27 | 3.4 |
| 200 | 150 | 300 | 21.5 | 2.0 |
| 250 | 80 | 600 | 32 | 3.7 |
| 250 | 100 | 600 | 34 | 4.0 |
| 250 | 150 | 600 | 38 | 4.5 |
| 250 | 200 | 300 | 29.5 | 2.5 |
| 300 | 100 | 600 | 41.5 | 4.5 |
| 300 | 150 | 600 | 46 | 5.0 |
| 300 | 200 | 600 | 51 | 5.5 |
| 300 | 250 | 300 | 39.5 | 3.1 |
| 350 | 150 | 600 | 46 | 5.5 |
| 350 | 200 | 600 | 60.5 | 6.0 |
| 350 | 250 | 600 | 67 | 6.5 |
| 350 | 300 | 300 | 52 | 3.6 |

## Double Flanged Tapers, Concentric and Flat DN 400 - 800, Class K12

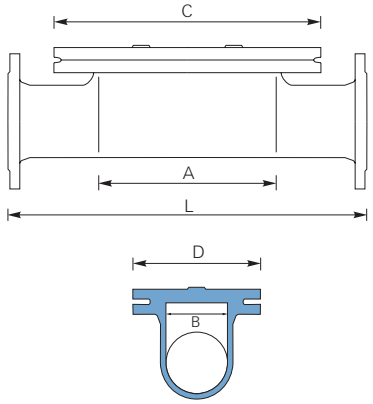
| DN Large mm | DN Small mm | L mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|
| 400 | 200 | 600 | 71 | 6.5 |
| 400 | 250 | 600 | 77 | 7 |
| 400 | 300 | 600 | 84 | 8 |
| 400 | 350 | 300 | 67 | 4.2 |
| 450 | 250 | 600 | 87.5 | 8 |
| 450 | 300 | 600 | 95 | 8.5 |
| 450 | 350 | 600 | 104 | 9 |
| 450 | 400 | 300 | 81 | 4.7 |
| 500 | 250 | 700 | 114 | 9.5 |
| 500 | 300 | 600 | 111 | 9 |
| 500 | 350 | 600 | 121 | 9 |
| 500 | 400 | 600 | 130 | 10 |
| 500 | 450 | 300 | 102 | 5 |
| 600 | 300 | 800 | 171 | 13 |
| 600 | 350 | 700 | 167 | 12 |
| 600 | 400 | 600 | 164 | 11 |
| 600 | 450 | 600 | 175 | 12 |
| 600 | 500 | 600 | 190 | 12 |
| 700 | 350 | 900 | 225 | 20 |
| 700 | 400 | 800 | 220 | 18 |
| 700 | 450 | 700 | 213 | 17 |
| 700 | 500 | 600 | 208 | 15 |
| 700 | 600 | 600 | 243 | 16 |
| 800 | 400 | 1000 | 293 | 25 |
| 800 | 450 | 900 | 287 | 23 |
| 800 | 500 | 800 | 285 | 21 |
| 800 | 600 | 600 | 275 | 17 |
| 800 | 700 | 600 | 295 | 20 |

## Double Flanged Tapers, Concentric and Flat DN 900 - 1600, Class K12

| DN Large mm | DN Small mm | L mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|
| 900 | 450 | 1100 | 380 | 31 |
| 900 | 500 | 1000 | 377 | 29 |
| 900 | 600 | 800 | 366 | 25 |
| 900 | 700 | 600 | 333 | 21 |
| 900 | 800 | 600 | 364 | 22 |
| 1000 | 500 | 1200 | 501 | 37 |
| 1000 | 600 | 1000 | 487 | 33 |
| 1000 | 700 | 800 | 452 | 30 |
| 1000 | 800 | 600 | 418 | 24 |
| 1000 | 900 | 600 | 454 | 25 |
| 1100 | 600 | 1230 | 617 | 43 |
| 1100 | 700 | 1050 | 592 | 42 |
| 1100 | 800 | 860 | 561 | 36 |
| 1100 | 900 | 800 | 579 | 35 |
| 1100 | 1000 | 600 | 550 | 28 |
| 1200 | 600 | 1450 | 801 | 54 |
| 1200 | 700 | 1260 | 768 | 53 |
| 1200 | 800 | 1070 | 765 | 47 |
| 1200 | 900 | 880 | 708 | 41 |
| 1200 | 1000 | 800 | 720 | 39 |
| 1200 | 1100 | 600 | 666 | 30 |
| 1400 | 1000 | 1500 | 1177 | 102 |
| 1400 | 1100 | 1250 | 1102 | 88 |
| 1400 | 1200 | 1000 | 1070 | 73 |
| 1600 | 1000 | 2000 | 1718 | 150 |
| 1600 | 1100 | 1750 | 1646 | 144 |
| 1600 | 1200 | 1500 | 1615 | 119 |
| 1600 | 1400 | 1000 | 1338 | 99 |




## Double Flanged Hatchboxes, Class K14

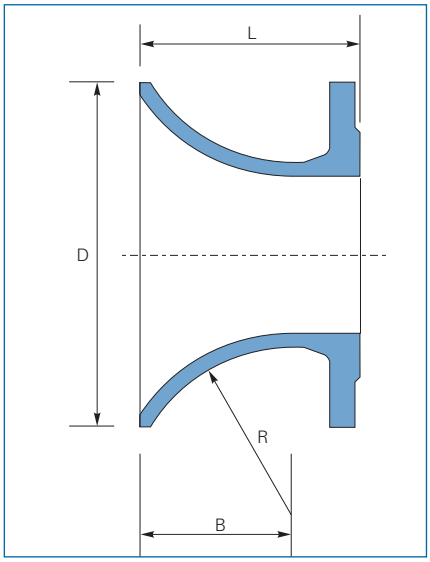



| DN mm | L mm | Clear opening A mm | Clear opening B mm | Cover C mm | Cover D mm | Number & size of studs | Number & size of bolts | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|---|---|---|---|
| 80 | 800 | 400 | 80 | 520 | 200 | - | 10 x M16 | 65 | 2.3 |
| 100 | 800 | 400 | 100 | 535 | 235 | - | 10 x M20 | 70 | 3 |
| 150 | 800 | 400 | 150 | 550 | 300 | 4 x M24 | 10 x M24 | 85 | 4.5 |
| 200 | 800 | 400 | 200 | 560 | 360 | 4 x M24 | 12 x M24 | 98.5 | 6 |
| 250 | 950 | 500 | 250 | 675 | 425 | 4 x M27 | 14 x M27 | 140 | 9 |
| 300 | 950 | 500 | 300 | 685 | 485 | 6 x M27 | 14 x M27 | 188 | 9 |
| 350 | 950 | 500 | 350 | 705 | 555 | 6 x M30 | 18 x M30 | 252 | 12 |
| 400 | 1100 | 600 | 400 | 820 | 620 | 6 x M33 | 18 x M33 | 310 | 16 |
| 450 | 1100 | 600 | 450 | 820 | 670 | 6 x M33 | 20 x M33 | 367 | 18 |
| 500 | 1200 | 600 | 500 | 830 | 730 | 4 x M33 | 22 x M33 | 422 | 22 |
| 600 | 1200 | 600 | 600 | 845 | 845 | 4 x M36 | 22 x M36 | 474 | 27 |

Maximum working pressure for hatchboxes u.t.i. DN350 = 16 bar, DN400 and above = 10 bar
* With PN16 flange. **Iron** - estimated minimum weight. **CML** - additional estimated weight for cement mortar lining.

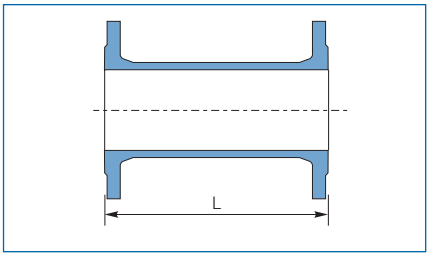
## Flanged Bellmouths, Class K12

| DN | L | D | B | R | *Weight | |
|---|---|---|---|---|---|---|
| | | | | | Iron | CML |
| mm | mm | mm | mm | mm | Kg | Kg |
| 80 | 135 | 160 | 80 | 100 | 5.2 | 0.5 |
| 100 | 140 | 185 | 85 | 106 | 6.3 | 0.7 |
| 150 | 155 | 245 | 95 | 119 | 10.1 | 1.2 |
| 200 | 170 | 310 | 110 | 137 | 14.7 | 1.7 |
| 250 | 190 | 370 | 120 | 150 | 21 | 2.3 |
| 300 | 210 | 435 | 135 | 169 | 29 | 3.0 |
| 350 | 225 | 495 | 145 | 181 | 39 | 3.7 |
| 400 | 245 | 560 | 160 | 200 | 51 | 4.6 |
| 450 | 260 | 620 | 170 | 212 | 63 | 5 |
| 500 | 280 | 685 | 185 | 231 | 82.5 | 6 |
| 600 | 300 | 810 | 210 | 262 | 122 | 8 |
| 700 | 340 | 945 | 225 | 281 | 154 | 13 |
| 800 | 380 | 1055 | 240 | 300 | 203 | 17.5 |
| 900 | 420 | 1165 | 255 | 319 | 263 | 20 |
| 1000 | 440 | 1290 | 270 | 337 | 339 | 23 |
| 1100 | 465 | 1400 | 285 | 357 | 409 | 27 |
| 1200 | 490 | 1515 | 300 | 376 | 515 | 31 |
| 1400 | 515 | 1725 | 305 | 400 | 609 | 51 |
| 1600 | 540 | 1945 | 310 | 400 | 826 | 60 |



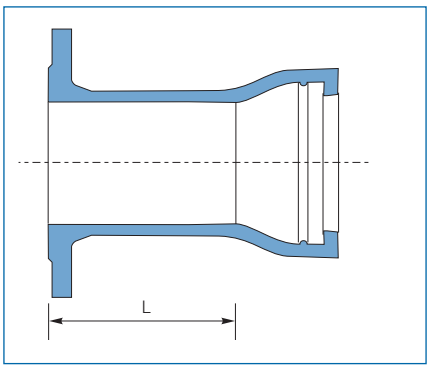

## Double Flanged Cast Pipes, Class K12

| DN | L | *Weight | |
|---|---|---|---|
| | | Iron | CML |
| mm | mm | Kg | Kg |
| 80 | 100 | 7.1 | 0.3 |
| 80 | 150 | 7.8 | 0.4 |
| 80 | 200 | 8.4 | 0.6 |
| 80 | 250 | 9.1 | 0.7 |
| 80 | 300 | 9.8 | 0.9 |
| 80 | 350 | 10.4 | 1.0 |
| 80 | 400 | 11.1 | 1.2 |
| 80 | 450 | 11.7 | 1.3 |
| 80 | 500 | 12.4 | 1.5 |
| 80 | 600 | 13.7 | 1.7 |
| 100 | 100 | 8.3 | 0.4 |
| 100 | 150 | 9.2 | 0.6 |
| 100 | 200 | 10.1 | 0.8 |
| 100 | 250 | 11.0 | 1.0 |
| 100 | 300 | 11.9 | 1.1 |
| 100 | 350 | 12.7 | 1.3 |
| 100 | 400 | 13.6 | 1.5 |
| 100 | 450 | 14.5 | 1.7 |
| 100 | 500 | 15.4 | 1.9 |
| 100 | 600 | 17.1 | 2.3 |
| 150 | 100 | 12.7 | 0.5 |
| 150 | 150 | 14.0 | 0.8 |
| 150 | 200 | 15.3 | 1.1 |
| 150 | 250 | 16.7 | 1.4 |
| 150 | 300 | 18.1 | 1.7 |
| 150 | 350 | 19.5 | 2.0 |
| 150 | 400 | 21.0 | 2.2 |
| 150 | 450 | 22.5 | 2.5 |
| 150 | 500 | 24.1 | 2.8 |
| 150 | 600 | 26.5 | 3.4 |
| 200 | 150 | 19 | 1.0 |
| 200 | 200 | 21 | 1.3 |
| 200 | 250 | 23 | 1.6 |
| 200 | 300 | 25 | 1.9 |
| 200 | 500 | 31 | 3.2 |



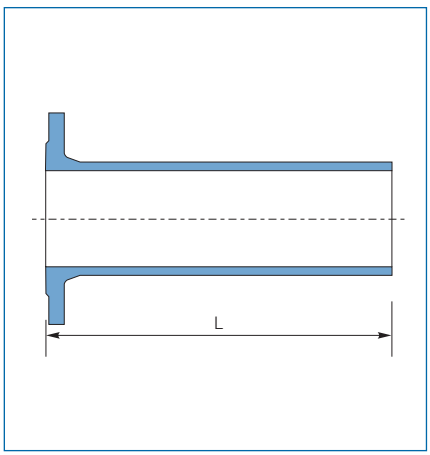

## Flanged Sockets, Class K12 §

| DN | L | *Weight | |
|---|---|---|---|
| | | Iron | CML |
| mm | mm | Kg | Kg |
| 80 | 130 | 7.3 | 0.4 |
| 100 | 130 | 8.7 | 0.5 |
| 150 | 135 | 13.6 | 0.8 |
| 200 | 140 | 19.7 | 1.1 |
| 250 | 145 | 27.5 | 1.4 |
| 300 | 150 | 38.0 | 1.7 |
| 350 | 155 | 48.5 | 2.0 |
| 400 | 160 | 62.5 | 2.4 |
| 450 | 165 | 75.5 | 2.7 |
| 500 | 170 | 97.0 | 3.1 |
| 600 | 180 | 140.0 | 4 |
| 700 | 190 | 202 | 6 |
| 800 | 200 | 253 | 7 |
| 900 | 210 | 327 | 8 |
| 1000 | 220 | 415 | 10 |
| 1100 | 230 | 520 | 11 |
| 1200 | 240 | 635 | 13 |




## Flanged Spigots, Class K12 §

| DN | L | *Weight | |
|---|---|---|---|
| | | Iron | CML |
| mm | mm | Kg | Kg |
| 80 | 350 | 7.9 | 1.0 |
| 100 | 360 | 9.7 | 1.4 |
| 150 | 380 | 15.6 | 2.1 |
| 200 | 400 | 22.5 | 3.0 |
| 250 | 420 | 31.5 | 3.9 |
| 300 | 440 | 42 | 5 |
| 350 | 460 | 55 | 6 |
| 400 | 480 | 70 | 7 |
| 450 | 500 | 86 | 8.5 |
| 500 | 520 | 109 | 9.5 |
| 600 | 560 | 159 | 12 |
| 700 | 600 | 206 | 18 |
| 800 | 600 | 254 | 21 |
| 900 | 600 | 320 | 24 |
| 1000 | 600 | 395 | 26 |
| 1100 | 600 | 473 | 29 |
| 1200 | 600 | 567 | 32 |
| 1400 | 710 | 818 | 66 |
| 1600 | 780 | 1143 | 82 |



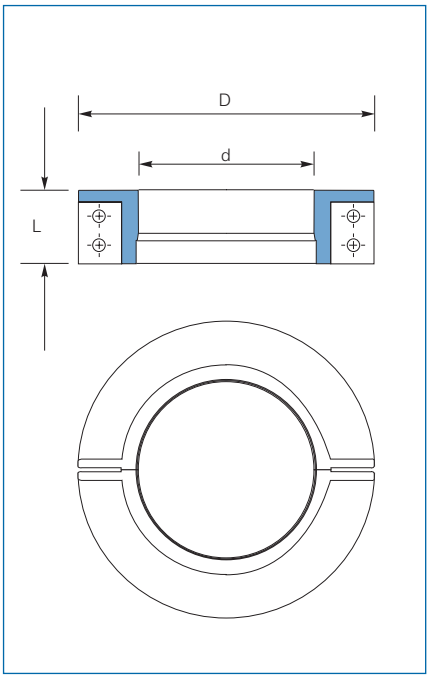

§ Flanged spigots and sockets may also be supplied fabricated as Class K9

*Weights shown are with PN16 flanges.

- Iron, estimated minimum weight.
- CML, additional estimated weight for cement mortar lining.

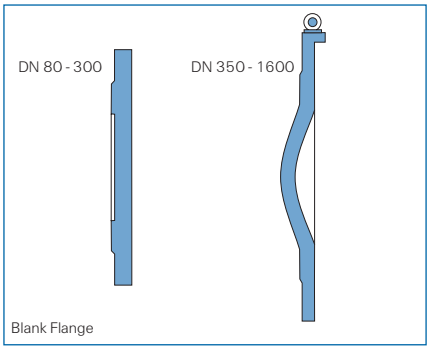
## Loose Puddle Flanges (for use on spun pipe only)

| DN | D | L | d | *Weight |
|---|---|---|---|---|
| mm | mm | mm | mm | Kg |
| 80 | 260 | 110 | 100 | 11.5 |
| 100 | 305 | 110 | 120 | 14.5 |
| 150 | 390 | 130 | 172 | 23 |
| 200 | 430 | 130 | 224 | 28 |
| 250 | 490 | 130 | 276 | 37 |
| 300 | 555 | 130 | 329 | 46 |
| 350 | 610 | 130 | 381 | 50 |
| 400 | 660 | 150 | 432 | 62 |
| 450 | 725 | 150 | 483 | 73 |
| 500 | 790 | 150 | 535 | 85 |
| 600 | 900 | 165 | 638 | 120 |
| 700 | 1000 | 165 | 746 | 144 |
| 800 | 1100 | 185 | 850 | 189 |
| 900 | 1200 | 185 | 953 | 221 |
| 1000 | 1340 | 200 | 1056 | 342 |
| 1100 | 1440 | 200 | 1160 | 378 |
| 1200 | 1570 | 225 | 1263 | 487 |
| 1400 | 1780 | 225 | 1470 | 634 |
| 1600 | 1996 | 225 | 1686 | 702 |




## Blank Flanges

| DN | Weight of Flange | | | |
|---|---|---|---|---|
| | PN10 | PN16 | PN25 | PN40 |
| mm | Kg | Kg | Kg | Kg |
| 80 | 3.9 | 3.9 | 3.9 | 3.7 |
| 100 | 4.8 | 4.8 | 5.1 | 5.1 |
| 150 | 8.1 | 8.1 | 8.8 | 11.4 |
| 200 | 11.6 | 11.4 | 13.3 | 20.5 |
| 250 | 16.9 | 16.6 | 21 | 34.5 |
| 300 | 24 | 23.5 | 30 | 51 |
| 350 | 30.5 | 34.5 | 44.5 | 74 |
| 400 | 37.5 | 46 | 59.5 | 106 |
| 450 | 46.5 | 60 | 80.5 | 118 |
| 500 | 58 | 79.5 | 97 | 150 |
| 600 | 88.5 | 125 | 149 | 232 |
| 700 | 128 | 163 | 215 | - |
| 800 | 180 | 228 | 304 | - |
| 900 | 234 | 299 | 397 | - |
| 1000 | 307 | 405 | 535 | - |
| 1100 | 391 | 509 | 670 | - |
| 1200 | 491 | 653 | 843 | - |
| 1400 | 739 | 993 | 1350 | - |
| 1600 | 1239 | 1462 | 1938 | - |

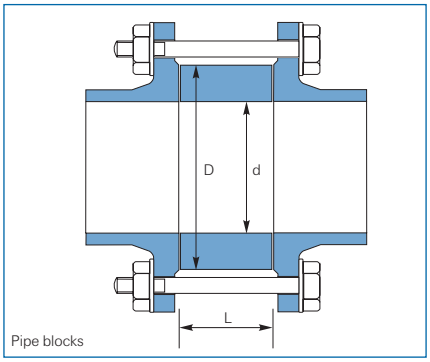



Note: The eyebolts on the larger flanges are intended for lifting the blank flanges alone.

## Pipe Blocks to suit PN16 flanges

| DN | d | D | L | | *Weight per 100mm length |
|---|---|---|---|---|---|
| | | | min | max | |
| mm | mm | mm | mm | mm | Kg |
| 80 | 76 | 133 | 15 | 105 | 6.6 |
| 100 | 100 | 153 | 15 | 120 | 7.4 |
| 150 | 150 | 209 | 15 | 130 | 11.8 |
| 200 | 200 | 264 | 15 | 140 | 16.5 |
| 250 | 250 | 319 | 20 | 155 | 22 |
| 300 | 300 | 367 | 20 | 170 | 25 |
| 350 | 350 | 432 | 20 | 180 | 35.5 |
| 400 | 400 | 484 | 20 | 195 | 41 |
| 450 | 450 | 544 | 20 | 205 | 52 |
| 500 | 500 | 606 | 20 | 220 | 65 |
| 600 | 600 | 721 | 30 | 245 | 89 |
| 700 | 704 | 791 | 30 | 245 | 75 |
| 800 | 802 | 898 | 30 | 245 | 94 |
| 900 | 897 | 998 | 30 | 250 | 109 |
| 1000 | 1003 | 1115 | 35 | 270 | 127 |
| 1100 | 1100 | 1215 | 35 | 290 | 151 |
| 1200 | 1203 | 1328 | 35 | 310 | 175 |
| 1400 | 1404 | 1530 | 40 | 375 | 205 |
| 1600 | 1604 | 1750 | 40 | 375 | 271 |

Pipe blocks for PN10, PN25 and PN40 flanges available, Full face pipe blocks on request.




## Drilled and Tapped Bosses

All welded bosses are mild steel as standard and supplied fitted with plugs

Sockets and bosses are positioned to customer requirements. A drawing should be supplied.

Please note the minimum distance from an end flange to the centre of a BSP socket is:

100mm DN 80 - 300
150mm DN 350 - 600
250mm DN 700 - 1200

Bosses will be fitted on the centre line unless stated otherwise.

## Cast Bosses and Facings

Bosses or facings may be cast on to our own range of flanged or spigoted fittings DN 400 and above.

## Drilled and Tapped Wall Sockets

For pipes & fittings DN 80-1200 the wall can be drilled and tapped 1/8" to 2" BSP.

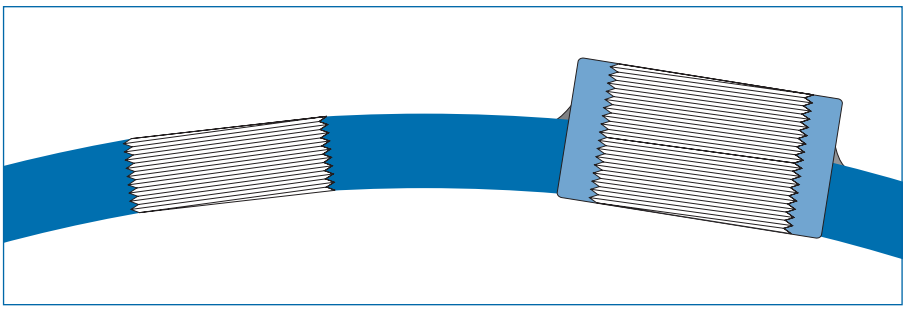
Pipes and fittings u.t.i. DN 150 should have wall tappings restricted to 1/2" max.

## Drilled and Tapped Standard Standard Bosses

For pipes & fittings DN 80-1200

Drilled 1/8" to 2" BSP as standard

Maximum boss OD = 100mm



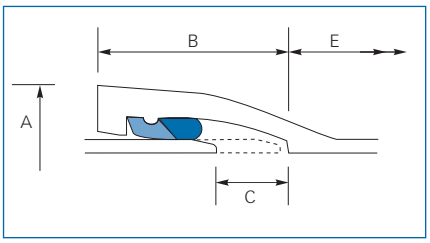
## Socket Specification and Dimensions

| DN | A | B | C | | Angular Deflection |
|---|---|---|---|---|---|
| | | | No Deflection | Full Deflection | |
| mm | mm | mm | mm | mm | Degrees |
| 80 | 146 | 80 | 38 | 30 | 5 |
| 100 | 166 | 80 | 38 | 28 | 5 |
| 150 | 219 | 80 | 38 | 23 | 5 |
| 200 | 277 | 87 | 38 | 18 | 5 |
| 250 | 329 | 96 | 38 | 14 | 5 |
| 300 | 386 | 104 | 38 | 9 | 5 |
| 350 | 439 | 101 | 38 | 11 | 4 |
| 400 | 495 | 112 | 38 | 7 | 4 |
| 450 | 547 | 107 | 38 | 4 | 4 |
| 500 | 604 | 117 | 40 | 2 | 4 |
| 600 | 713 | 125 | 45 | 1 | 4 |
| 700 | 825 | 138 | 40 | 0 | 4 |
| 800 | 930 | 143 | 40 | 0 | 4 |
| 900 | 1045 | 154 | 43 | 0 | 4 |
| 1000 | 1155 | 164 | 46 | 0 | 4 |
| 1100 | 1270 | 174 | 50 | 0 | 4 |
| 1200 | 1380 | 184 | 54 | 0 | 4 |

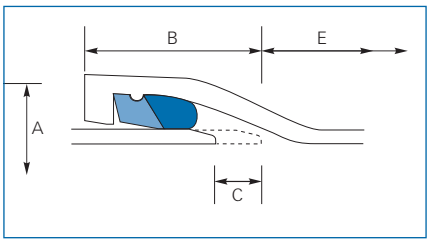
## Chamfer Dimensions

| DN | L | |
|---|---|---|
| | Min. | Max. |
| mm | mm | mm |
| 80 | 10 | 14 |
| 100 | 10 | 14 |
| 150 | 10 | 14 |
| 200 | 10 | 14 |
| 250 | 10 | 14 |
| 300 | 10 | 14 |
| 350 | 10 | 14 |
| 400 | 12 | 16 |
| 450 | 12 | 16 |
| 500 | 14 | 18 |
| 600 | 14 | 18 |
| 700 | 16 | 20 |
| 800 | 16 | 20 |
| 900 | 18 | 22 |
| 1000 | 20 | 24 |
| 1100 | 22 | 26 |
| 1200 | 24 | 28 |

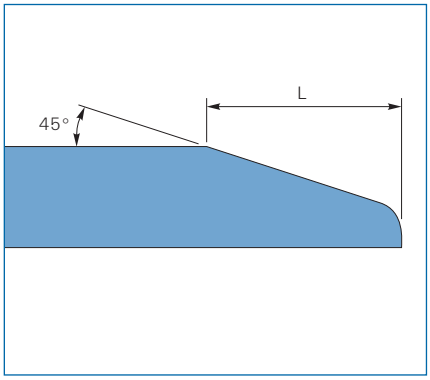
## Joints up to DN 600




## Joints DN 600 and Above




A - Socket OD
B - Socket Depth
C - Allowable Spigot Withdrawal
E - Effective Length




## Socket and Spigot Pipes, Class K9

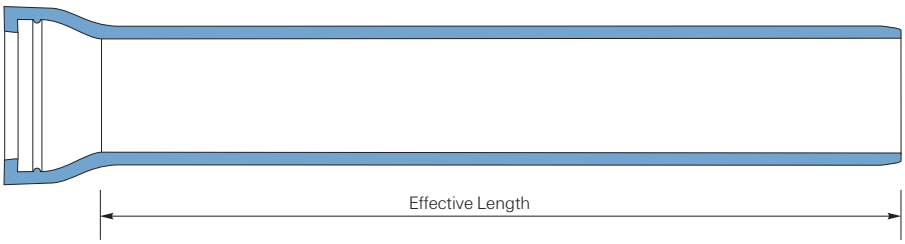
| DN | Mean ext. dia. of barrel | Standard effective length | *Weight | |
|---|---|---|---|---|
| | | | Iron | CML |
| mm | mm | mm | Kg | Kg |
| 80 | 98 | 5500 | 70.5 | 16 |
| 100 | 118 | 5500 | 87 | 20 |
| 150 | 170 | 5500 | 131 | 31 |
| 200 | 222 | 5500 | 177 | 41 |
| 250 | 274 | 5500 | 234 | 52 |
| 300 | 326 | 5500 | 297 | 62 |
| 350 | 378 | 5500 | 368 | 73 |
| 400 | 429 | 5500 | 441 | 83 |
| 450 | 480 | 5500 | 524 | 92 |
| 500 | 532 | 5500 | 610 | 103 |
| 600 | 635 | 5500 | 806 | 124 |
| 700 | 738 | 5500 | 1012 | 173 |
| 800 | 842 | 5500 | 1247 | 197 |
| 900 | 945 | 8080 | 2185 | 326 |
| 1000 | 1048 | 8070 | 2616 | 361 |
| 1100 | 1152 | 8060 | 3076 | 397 |
| 1200 | 1255 | 8050 | 3572 | 433 |

*Iron - estimated minimum weight. CML - additional estimated weight for cement mortar lining.

## Length Tolerances

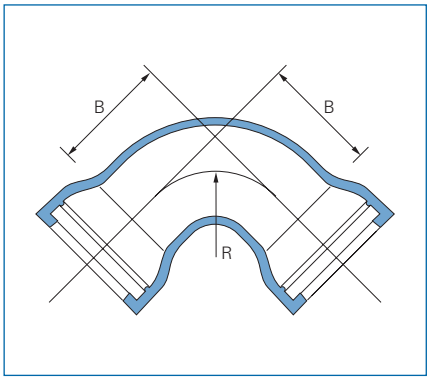
The tolerance on pipe length allowed by EN 545 and EN 598 is ± 30mm

However, as test rings are cut from a proportion of pipes for quality control purposes, some pipes may be shorter than the length given by 150mm.



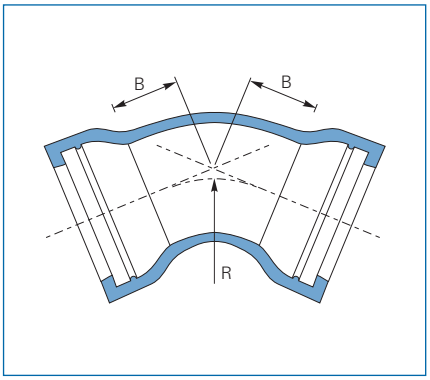
## Double Socket 90° Bends Class K12

| DN | B | R | *Weight | |
|---|---|---|---|---|
| | | approx. | Iron | CML |
| mm | mm | mm | Kg | Kg |
| 80 | 100 | 80 | 7.1 | 0.5 |
| 100 | 120 | 95 | 9.2 | 0.8 |
| 150 | 170 | 145 | 16.8 | 1.6 |
| 200 | 220 | 195 | 28 | 2.7 |
| 250 | 270 | 245 | 42.5 | 4.1 |
| 300 | 320 | 290 | 63.5 | 6 |
| 350 | 370 | 340 | 83 | 8 |
| 400 | 420 | 390 | 113 | 10 |
| 450 | 470 | 435 | 143 | 12 |
| 500 | 520 | 485 | 183 | 15 |
| 600 | 620 | 580 | 273 | 22 |
| 700 | 720 | 675 | 455 | 36 |
| 800 | 820 | 775 | 605 | 47 |
| 900 | 920 | 870 | 813 | 58 |
| 1000 | 1020 | 970 | 1045 | 72 |



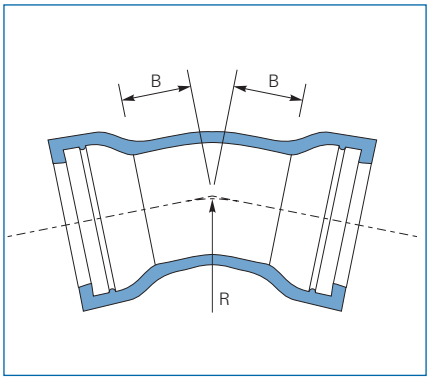

## Double Socket 45° Bends Class K12

| DN | B | R | *Weight | |
|---|---|---|---|---|
| | | approx. | Iron | CML |
| mm | mm | mm | Kg | Kg |
| 80 | 55 | 80 | 6.3 | 0.3 |
| 100 | 65 | 100 | 7.9 | 0.5 |
| 150 | 85 | 145 | 13.5 | 0.9 |
| 200 | 110 | 200 | 22 | 1.6 |
| 250 | 130 | 245 | 32.5 | 2.3 |
| 300 | 155 | 305 | 49 | 3.4 |
| 350 | 175 | 350 | 61 | 4.3 |
| 400 | 200 | 405 | 82.5 | 6 |
| 450 | 220 | 450 | 103 | 7 |
| 500 | 240 | 495 | 130 | 8 |
| 600 | 285 | 595 | 191 | 12 |
| 700 | 330 | 685 | 336 | 20 |
| 800 | 370 | 785 | 434 | 25 |
| 900 | 415 | 885 | 583 | 31 |
| 1000 | 460 | 985 | 741 | 39 |



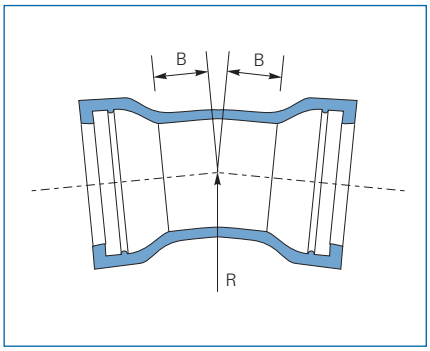

## Double Socket 22½° Bends Class K12

| DN | B | R | *Weight | |
|---|---|---|---|---|
| | | approx. | Iron | CML |
| mm | mm | mm | Kg | Kg |
| 80 | 40 | 90 | 5.9 | 0.2 |
| 100 | 45 | 110 | 7.3 | 0.3 |
| 150 | 55 | 155 | 12 | 0.6 |
| 200 | 65 | 195 | 18.8 | 1.0 |
| 250 | 75 | 240 | 27 | 1.4 |
| 300 | 90 | 305 | 41 | 2.0 |
| 350 | 100 | 350 | 50 | 2.6 |
| 400 | 110 | 390 | 66 | 3.2 |
| 450 | 120 | 435 | 81.5 | 4.0 |
| 500 | 135 | 505 | 103 | 4.9 |
| 600 | 155 | 590 | 147 | 7 |
| 700 | 175 | 650 | 271 | 11 |
| 800 | 195 | 750 | 343 | 14 |
| 900 | 220 | 850 | 461 | 17 |
| 1000 | 240 | 950 | 577 | 21 |



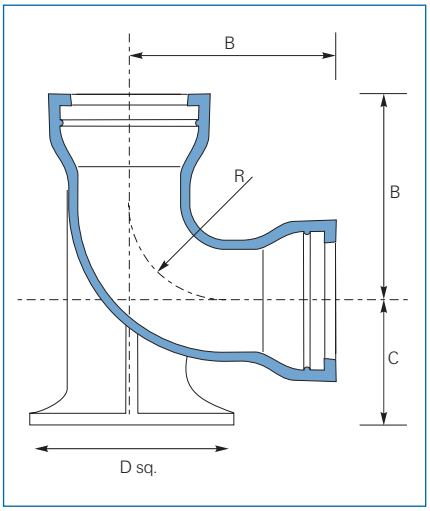

## Double Socket 11¼° Bends Class K12

| DN | B | R | *Weight | |
|---|---|---|---|---|
| | | approx. | Iron | CML |
| mm | mm | mm | Kg | Kg |
| 80 | 30 | 75 | 5.6 | 0.2 |
| 100 | 35 | 120 | 6.9 | 0.3 |
| 150 | 40 | 155 | 11.2 | 0.5 |
| 200 | 45 | 195 | 17.2 | 0.7 |
| 250 | 50 | 230 | 24.5 | 0.9 |
| 300 | 60 | 315 | 37 | 1.4 |
| 350 | 65 | 350 | 44 | 1.7 |
| 400 | 70 | 385 | 58 | 2.1 |
| 450 | 75 | 420 | 71.5 | 2.5 |
| 500 | 85 | 510 | 90 | 3.1 |
| 600 | 95 | 580 | 126 | 4.2 |
| 700 | 95 | 500 | 235 | 6 |
| 800 | 110 | 600 | 295 | 8 |
| 900 | 120 | 700 | 393 | 9 |
| 1000 | 130 | 800 | 489 | 11 |



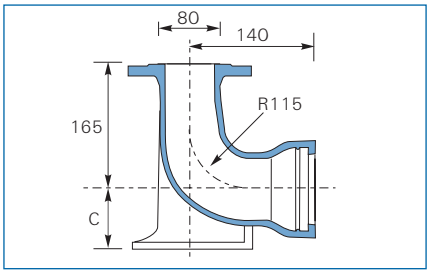

## Double Socket 90° Duckfoot Bends, Class K12

| DN | B | R | C | D | *Weight | |
|---|---|---|---|---|---|---|
| | | approx. | | | Iron | CML |
| mm | mm | mm | mm | mm | Kg | Kg |
| 80 | 100 | 80 | 110 | 180 | 11.3 | 0.5 |
| 100 | 120 | 95 | 125 | 200 | 14.8 | 0.8 |
| 150 | 170 | 145 | 160 | 250 | 28.5 | 1.6 |
| 200 | 220 | 195 | 190 | 300 | 44.5 | 2.7 |
| 250 | 270 | 245 | 225 | 350 | 68.5 | 4.1 |
| 300 | 320 | 290 | 255 | 400 | 100 | 6 |
| 350 | 370 | 340 | 290 | 450 | 133 | 8 |
| 400 | 420 | 390 | 320 | 500 | 180 | 10 |
| 450 | 470 | 435 | 355 | 550 | 230 | 12 |
| 500 | 520 | 485 | 385 | 600 | 294 | 15 |
| 600 | 620 | 580 | 450 | 700 | 442 | 22 |




## 80mm Flange and Socket 90° Short Hydrant Duckfoot Bends Class K12

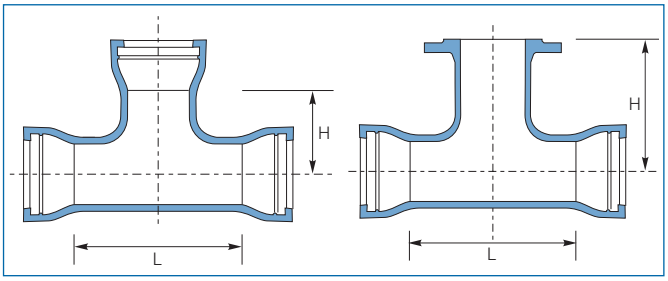
| DN | C | *Weight | |
|---|---|---|---|
| | | Iron | CML |
| mm | mm | Kg | Kg |
| 80 | 95 | 12.5 | 0.7 |
| 100 | 105 | 15.9 | 1.0 |
| 150 | 130 | 21.5 | 1.3 |




*Iron - estimated minimum weight. CML - additional estimated weight for cement mortar lining.

## All Socket Tees and Flange on Double Socket Tees DN 80 - DN 500, Class K14

| DN Body | DN Branch | L | All Socket Tee H | All Socket Tee Estimated Weight Iron | All Socket Tee Estimated Weight CML | Flange on DS Tee H | Flange on DS Tee Estimated Weight Iron | Flange on DS Tee Estimated Weight CML |
|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | Kg | Kg | mm | Kg | Kg |
| 80 | 80 | 185 | 110 | 10.9 | 0.7 | 185 | 12.6 | 0.9 |
| 100 | 80 | 185 | 125 | 12.6 | 0.9 | 195 | 14.3 | 1.1 |
| 100 | 100 | 210 | 125 | 13.8 | 1.1 | 200 | 15.9 | 1.5 |
| 150 | 80 | 190 | 150 | 18.1 | 1.3 | 220 | 19.7 | 1.5 |
| 150 | 100 | 210 | 150 | 19.5 | 1.5 | 230 | 21.5 | 1.7 |
| 150 | 150 | 270 | 150 | 23 | 1.9 | 245 | 26.5 | 2.3 |
| 200 | 80 | 190 | 180 | 25.5 | 1.6 | 250 | 27 | 1.9 |
| 200 | 100 | 215 | 180 | 27 | 1.9 | 255 | 29 | 2.2 |
| 200 | 150 | 270 | 180 | 31.5 | 2.3 | 270 | 35 | 2.8 |
| 200 | 200 | 330 | 180 | 37.5 | 2.8 | 275 | 41.5 | 3.5 |
| 250 | 80 | 220 | 205 | 35.5 | 2.2 | 275 | 37 | 2.5 |
| 250 | 100 | 220 | 205 | 36 | 2.3 | 285 | 38 | 2.5 |
| 250 | 150 | 335 | 205 | 45 | 3.3 | 300 | 48.5 | 3.8 |
| 250 | 200 | 335 | 205 | 48 | 3.5 | 305 | 52 | 4.2 |
| 250 | 250 | 335 | 205 | 55 | 4.0 | 320 | 61 | 5.0 |
| 300 | 80 | 220 | 235 | 48 | 2.7 | 305 | 49.5 | 2.8 |
| 300 | 100 | 220 | 235 | 49 | 2.7 | 310 | 51 | 3.0 |
| 300 | 150 | 335 | 235 | 60 | 4.0 | 325 | 63 | 4.5 |
| 300 | 200 | 335 | 235 | 62 | 4.0 | 330 | 66.5 | 4.8 |
| 300 | 250 | 450 | 240 | 76.5 | 5.5 | 345 | 82.58 | 6.5 |
| 300 | 300 | 450 | 240 | 81.5 | 5.5 | 360 | 89.5 | 7.0 |
| 350 | 80 | 225 | 260 | 57 | 3.1 | 330 | 58.5 | 3.3 |
| 350 | 100 | 225 | 260 | 57 | 3.1 | 340 | 59.5 | 3.4 |
| 350 | 150 | 340 | 265 | 70.5 | 4.7 | 355 | 74 | 5 |
| 350 | 200 | 340 | 265 | 73.5 | 4.8 | 360 | 77.5 | 5.5 |
| 350 | 250 | 515 | 265 | 95.5 | 7.5 | 375 | 102 | 8 |
| 350 | 300 | 515 | 270 | 101 | 7.5 | 390 | 108 | 9 |
| 350 | 350 | 515 | 270 | 102 | 8 | 405 | 117 | 9.5 |
| 400 | 80 | 225 | 290 | 72.5 | 3.6 | 360 | 74 | 3.8 |
| 400 | 100 | 225 | 290 | 73 | 3.7 | 365 | 75 | 3.9 |
| 400 | 150 | 340 | 290 | 88.5 | 5.5 | 380 | 91.5 | 6 |
| 400 | 200 | 340 | 290 | 91 | 5.5 | 385 | 95.5 | 6.5 |
| 400 | 250 | 575 | 295 | 121 | 9 | 400 | 128 | 10 |
| 400 | 300 | 575 | 295 | 130 | 9 | 415 | 138 | 11 |
| 400 | 350 | 575 | 300 | 131 | 9 | 430 | 146 | 11 |
| 400 | 400 | 575 | 300 | 137 | 10 | 445 | 156 | 12 |
| 450 | 80 | 230 | 315 | 86 | 4 | 385 | 88 | 4.3 |
| 450 | 100 | 230 | 315 | 87 | 4.1 | 395 | 89 | 4.4 |
| 450 | 150 | 345 | 320 | 105 | 6.2 | 410 | 108 | 6.5 |
| 450 | 200 | 345 | 320 | 108 | 6.4 | 415 | 112 | 7 |
| 450 | 250 | 635 | 320 | 151 | 11 | 430 | 157 | 12 |
| 450 | 300 | 635 | 325 | 159 | 12 | 44 | 167 | 13 |
| 450 | 350 | 635 | 310 | 161 | 12 | 460 | 174 | 13 |
| 450 | 400 | 635 | 315 | 169 | 12 | 475 | 186 | 15 |
| 450 | 450 | 635 | 330 | 171 | 12 | 490 | 196 | 15 |
| 500 | 80 | 230 | 345 | 105 | 4.5 | 415 | 107 | 4.7 |
| 500 | 100 | 290 | 345 | 106 | 4.6 | 420 | 108 | 4.8 |
| 500 | 150 | 350 | 345 | 127 | 7 | 435 | 130 | 7.5 |
| 500 | 200 | 350 | 345 | 129 | 7.5 | 440 | 133 | 7.5 |
| 500 | 250 | 580 | 350 | 170 | 11 | 455 | 176 | 12 |
| 500 | 300 | 580 | 350 | 171 | 11 | 470 | 182 | 13 |
| 500 | 350 | 580 | 340 | 184 | 12 | 485 | 198 | 13 |
| 500 | 400 | 580 | 340 | 188 | 12 | 500 | 207 | 14 |
| 500 | 450 | 695 | 345 | 212 | 14 | 515 | 236 | 17 |
| 500 | 500 | 695 | 360 | 219 | 15 | 530 | 252 | 18 |



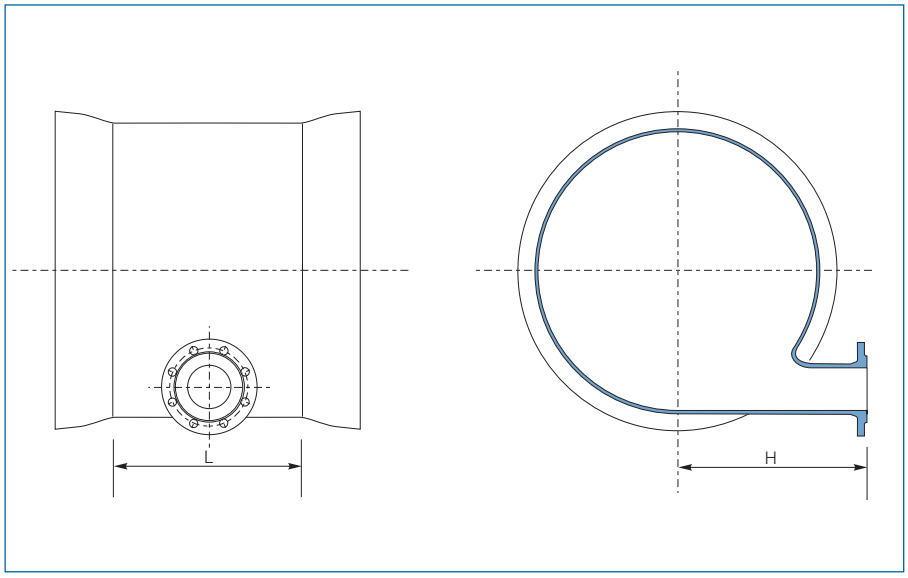

## All Socket Tees and Flange on Double Socket Tees DN 600 - DN 1000, Class K14

| DN Body | DN Branch | L | All Socket Tee H | All Socket Tee Estimated Weight Iron | All Socket Tee Estimated Weight CML | Flange on DS Tee H | Flange on DS Tee Estimated Weight Iron | Flange on DS Tee Estimated Weight CML |
|---|---|---|---|---|---|---|---|---|
| mm | mm | mm | mm | Kg | Kg | mm | Kg | Kg |
| 600 | 80 | 355 | 400 | 167 | 8 | 470 | 168 | 8.5 |
| 600 | 100 | 3551 | 400 | 168 | 8 | 475 | 169 | 8.5 |
| 600 | 150 | 355 | 400 | 169 | 8.5 | 490 | 172 | 9 |
| 600 | 200 | 355 | 400 | 171 | 8.5 | 495 | 175 | 9 |
| 600 | 250 | 585 | 405 | 225 | 14 | 510 | 230 | 15 |
| 600 | 300 | 585 | 405 | 224 | 14 | 525 | 235 | 15 |
| 600 | 350 | 585 | 395 | 229 | 14 | 540 | 243 | 16 |
| 600 | 400 | 585 | 395 | 247 | 14 | 555 | 265 | 17 |
| 600 | 450 | 820 | 400 | 302 | 20 | 570 | 325 | 23 |
| 600 | 500 | 820 | 405 | 308 | 20 | 585 | 341 | 23 |
| 600 | 600 | 820 | 420 | 322 | 20 | 615 | 378 | 25 |
| 700 | 80* | 360 | - | - | - | 390 | 276 | 11 |
| 700 | 100* | 360 | - | - | - | 395 | 278 | 11 |
| 700 | 150* | 360 | 410 | 288 | 11 | 395 | 280 | 11 |
| 700 | 200 | 360 | 415 | 289 | 12 | 510 | 294 | 12 |
| 700 | 250 | 415 | 420 | 306 | 13 | 525 | 313 | 14 |
| 700 | 300 | 475 | 425 | 326 | 15 | 530 | 334 | 17 |
| 700 | 350 | 530 | 425 | 342 | 16 | 545 | 355 | 18 |
| 700 | 400 | 580 | 430 | 361 | 18 | 570 | 378 | 20 |
| 700 | 450 | 640 | 435 | 381 | 19 | 580 | 402 | 22 |
| 700 | 500 | 695 | 435 | 416 | 21 | 580 | 445 | 24 |
| 700 | 600 | 810 | 445 | 461 | 24 | 610 | 509 | 28 |
| 700 | 700 | 900 | 450 | 536 | 28 | 620 | 546 | 23 |
| 800 | 80 | 360 | - | - | - | 440 | 335 | 13 |
| 800 | 100 | 360 | - | - | - | 445 | 337 | 13 |
| 800 | 150 | 360 | 465 | 352 | 13 | 448 | 339 | 13 |
| 800 | 200 | 360 | 470 | 353 | 13 | 560 | 358 | 14 |
| 800 | 250 | 420 | 470 | 375 | 15 | 575 | 382 | 16 |
| 800 | 300 | 480 | 480 | 399 | 18 | 585 | 406 | 19 |
| 800 | 350 | 535 | 480 | 418 | 19 | 600 | 431 | 20 |
| 800 | 400 | 585 | 480 | 439 | 20 | 625 | 456 | 22 |
| 800 | 450 | 645 | 490 | 463 | 22 | 630 | 483 | 25 |
| 800 | 500 | 700 | 490 | 486 | 24 | 635 | 515 | 27 |
| 800 | 600 | 1020 | 495 | 629 | 35 | 665 | 678 | 39 |
| 800 | 700 | 1020 | 505 | 680 | 36 | 670 | 688 | 41 |
| 800 | 800 | 1020 | 505 | 701 | 36 | 700 | 724 | 42 |
| 900 | 80* | 370 | - | - | - | 490 | 436 | 15 |
| 900 | 100* | 370 | - | - | - | 495 | 437 | 15 |
| 900 | 150* | 370 | 515 | 457 | 15 | 498 | 439 | 15 |
| 900 | 200* | 370 | 520 | 458 | 15 | 498 | 441 | 15 |
| 900 | 250 | 425 | 520 | 482 | 17 | 635 | 489 | 18 |
| 900 | 300 | 485 | 525 | 509 | 20 | 645 | 517 | 21 |
| 900 | 350 | 540 | 530 | 532 | 21 | 660 | 546 | 23 |
| 900 | 400 | 590 | 530 | 556 | 23 | 680 | 574 | 25 |
| 900 | 450 | 650 | 535 | 582 | 25 | 690 | 605 | 28 |
| 900 | 500 | 705 | 540 | 610 | 27 | 690 | 639 | 30 |
| 900 | 600 | 1145 | 545 | 833 | 44 | 715 | 883 | 48 |
| 900 | 700 | 1145 | 555 | 884 | 45 | 720 | 892 | 50 |
| 900 | 800 | 1145 | 555 | 903 | 44 | 750 | 326 | 51 |
| 900 | 900 | 1145 | 560 | 944 | 44 | 770 | 975 | 53 |
| 1000 | 80* | 370 | - | - | - | 545 | 530 | 16 |
| 1000 | 100* | 370 | - | - | - | 550 | 532 | 16 |
| 1000 | 150* | 370 | 565 | 556 | 17 | 550 | 534 | 16 |
| 1000 | 200* | 370 | 570 | 557 | 17 | 550 | 536 | 16 |
| 1000 | 250 | 430 | 570 | 586 | 20 | 685 | 594 | 21 |
| 1000 | 300 | 490 | 580 | 618 | 22 | 695 | 626 | 24 |
| 1000 | 350 | 545 | 580 | 645 | 24 | 710 | 658 | 25 |
| 1000 | 400 | 595 | 580 | 672 | 26 | 735 | 689 | 28 |
| 1000 | 450 | 655 | 590 | 703 | 28 | 735 | 724 | 31 |
| 1000 | 500 | 710 | 590 | 734 | 31 | 740 | 762 | 33 |
| 1000 | 600 | 1265 | 600 | 1008 | 55 | 765 | 1056 | 58 |
| 1000 | 700 | 1265 | 615 | 1112 | 55 | 770 | 1118 | 60 |
| 1000 | 800 | 1265 | 615 | 1129 | 55 | 800 | 1148 | 61 |
| 1000 | 900 | 1265 | 620 | 1171 | 55 | 825 | 1190 | 63 |
| 1000 | 1000 | 1265 | 625 | 1209 | 55 | 865 | 1257 | 65 |

* These sizes are supplied with a facing instead of a flanged branch

## Flange on Double Socket Level Invert Tees, Class 14 (Fixed Flange)

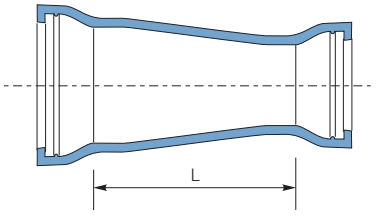
| DN Body mm | DN Branch mm | L mm | H mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|
| 100 | 80 | 185 | 195 | 16 | 1.1 |
| 150 | 80 | 190 | 220 | 21 | 1.5 |
| 200 | 80 | 190 | 250 | 27.5 | 1.9 |
| 200 | 100 | 215 | 250 | 28.5 | 2.2 |
| 250 | 80 | 220 | 275 | 37.5 | 2.6 |
| 250 | 100 | 220 | 275 | 39 | 2.7 |
| 300 | 80 | 220 | 305 | 50 | 2.8 |
| 300 | 100 | 220 | 305 | 52.5 | 3.2 |
| 300 | 150 | 335 | 305 | 66 | 4.7 |
| 350 | 80 | 225 | 340 | 59.5 | 3.5 |
| 350 | 100 | 225 | 340 | 60.5 | 3.7 |
| 350 | 150 | 340 | 340 | 79 | 5.5 |
| 400 | 80 | 225 | 365 | 75 | 4 |
| 400 | 100 | 225 | 365 | 76 | 4.2 |
| 400 | 150 | 340 | 365 | 97.5 | 6 |
| 400 | 200 | 340 | 365 | 103 | 6.5 |
| 450 | 80 | 230 | 380 | 89 | 4.5 |
| 450 | 100 | 230 | 380 | 90 | 4.7 |
| 450 | 150 | 345 | 380 | 115 | 7 |
| 450 | 200 | 345 | 380 | 121 | 7 |
| 500 | 80 | 230 | 400 | 107 | 5 |
| 500 | 100 | 230 | 400 | 108 | 5 |
| 500 | 150 | 350 | 400 | 137 | 7.5 |
| 500 | 200 | 350 | 400 | 143 | 8 |
| 600 | 80 | 355 | 435 | 170 | 8.5 |
| 600 | 100 | 355 | 435 | 171 | 9 |
| 600 | 150 | 355 | 450 | 180 | 9.5 |
| 600 | 200 | 355 | 450 | 187 | 9.5 |
| 700 | 150 | 360 | 500 | 296 | 13 |
| 700 | 200 | 360 | 500 | 300 | 13 |
| 800 | 150 | 360 | 540 | 360 | 14 |
| 800 | 200 | 360 | 540 | 364 | 15 |
| 900 | 150 | 370 | 580 | 467 | 16 |
| 900 | 200 | 370 | 580 | 471 | 17 |
| 1000 | 150 | 370 | 630 | 565 | 18 |
| 1000 | 200 | 370 | 630 | 569 | 19 |




*Iron - estimated minimum weight. CML - additional estimated weight for cement mortar lining.

## Double Socket Concentric Tapers, Class K12

| DN Large mm | DN Small mm | L mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|
| 100 | 80 | 90 | 6.6 | 0.3 |
| 150 | 80 | 190 | 10.9 | 0.8 |
| 150 | 100 | 150 | 10.8 | 0.7 |
| 200 | 100 | 250 | 17.0 | 1.7 |
| 200 | 150 | 150 | 16.4 | 1.0 |
| 250 | 150 | 250 | 24.5 | 1.9 |
| 250 | 200 | 150 | 23.5 | 1.4 |
| 300 | 150 | 350 | 35.5 | 3.0 |
| 300 | 200 | 250 | 34.5 | 2.3 |
| 300 | 250 | 150 | 33.0 | 1.5 |
| 350 | 200 | 360 | 45.5 | 3.7 |
| 350 | 250 | 260 | 44 | 2.9 |
| 350 | 300 | 160 | 43 | 1.9 |
| 400 | 200 | 460 | 61.5 | 5.0 |
| 400 | 250 | 360 | 59.5 | 4.4 |
| 400 | 300 | 260 | 58 | 3.4 |
| 400 | 350 | 160 | 53 | 2.2 |
| 450 | 250 | 460 | 76 | 6.0 |
| 450 | 300 | 360 | 75 | 5.0 |
| 450 | 350 | 260 | 69.5 | 3.8 |
| 450 | 400 | 160 | 66 | 2.5 |
| 500 | 250 | 560 | 96.5 | 7.5 |
| 500 | 300 | 460 | 95.5 | 7.0 |
| 500 | 350 | 360 | 90.5 | 6.0 |
| 500 | 400 | 260 | 86.5 | 4.3 |
| 500 | 450 | 160 | 80.5 | 2.8 |
| 600 | 300 | 660 | 144 | 11 |
| 600 | 350 | 560 | 138 | 10 |
| 600 | 400 | 460 | 133 | 9 |
| 600 | 450 | 360 | 127 | 7 |
| 600 | 500 | 260 | 121 | 5 |
| 700 | 350 | 800 | 235 | 18 |
| 700 | 400 | 700 | 231 | 16 |
| 700 | 450 | 600 | 224 | 14 |
| 700 | 500 | 480 | 215 | 12 |
| 700 | 600 | 280 | 196 | 7 |
| 800 | 400 | 870 | 303 | 22 |
| 800 | 450 | 770 | 295 | 20 |
| 800 | 500 | 670 | 288 | 18 |
| 800 | 600 | 480 | 270 | 14 |
| 800 | 700 | 280 | 280 | 9 |
| 900 | 450 | 940 | 396 | 26 |
| 900 | 500 | 940 | 388 | 24 |
| 900 | 600 | 640 | 365 | 20 |
| 900 | 700 | 480 | 384 | 17 |
| 900 | 800 | 280 | 355 | 10 |
| 1000 | 500 | 1040 | 504 | 32 |
| 1000 | 600 | 840 | 480 | 28 |
| 1000 | 700 | 680 | 498 | 25 |
| 1000 | 800 | 480 | 468 | 19 |
| 1000 | 900 | 280 | 446 | 12 |

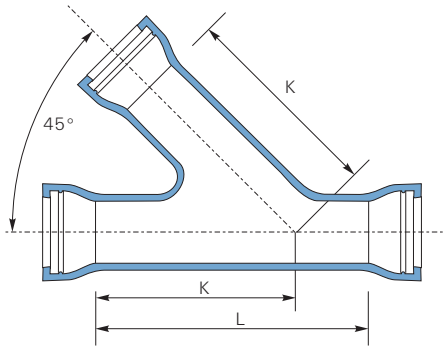


## All Socket radial Tees, Class K14

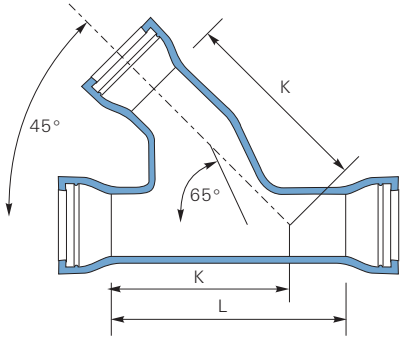
| DN Body mm | DN Branch mm | L mm | A mm | B mm | R approx. mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|---|---|
| 80 | 80 | 545 | 165 | 380 | 330 | 21 | 2.7 |
| 100 | 100 | 580 | 180 | 400 | 340 | 28 | 3.5 |
| 150 | 150 | 670 | 220 | 450 | 385 | 47 | 6 |
| 200 | 200 | 760 | 260 | 500 | 430 | 72.5 | 9 |
| 250 | 250 | 900 | 350 | 550 | 475 | 107 | 14 |
| 300 | 300 | 1000 | 400 | 600 | 515 | 150 | 19 |
| 350 | 350 | 1100 | 450 | 650 | 560 | 206 | 23 |

Maximum hydraulic working pressure DN 80-350 = 16 bar
Recommended maximum site hydraulic test pressure DN 80-350 = 21 bar
Unequal radial tees are available on request.

Type N



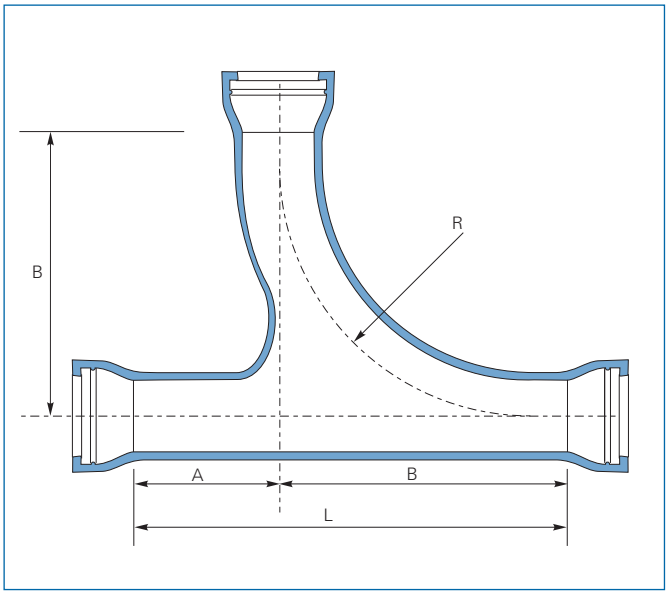

Type M




## All Socket Angle Branches, Class K14

| DN Body mm | DN Branch mm | Type | L mm | K mm | *Weight Iron Kg | *Weight CML Kg |
|---|---|---|---|---|---|---|
| 80 | 80 | N | 500 | 375 | 19 | 2.3 |
| 100 | 100 | N | 540 | 405 | 25.5 | 3.1 |
| 150 | 150 | N | 640 | 480 | 45.5 | 5.5 |
| 200 | 200 | N | 735 | 560 | 71.5 | 8.5 |
| 250 | 250 | N | 830 | 640 | 106 | 12 |
| 300 | 300 | N | 930 | 715 | 151 | 15 |
| 350 | 350 | M | 880 | 790 | 169 | 17 |
| 400 | 400 | M | 970 | 870 | - | - |
| 450 | 450 | M | 1060 | 950 | - | - |
| 500 | 500 | M | 1140 | 1025 | - | - |
| 600 | 600 | M | 1310 | 1180 | - | - |

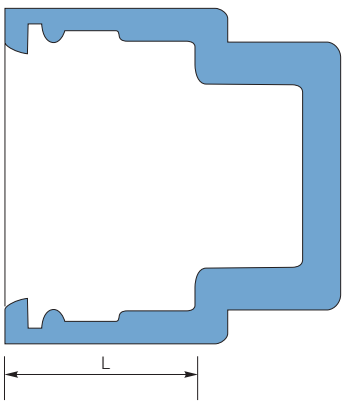
Maximum hydraulic working pressure DN 80-350 = 16 bar
Recommended maximum site hydraulic test pressure DN 80-350 = 21 bar
Unequal angle branches are available on request
Iron, estimated minimum weight
CML, additional estimated weight for cement mortar lining




## Socket End Caps

| DN mm | L mm | *Weight Kg |
|---|---|---|
| 80 | 82 | 6.0 |
| 100 | 82 | 7.4 |
| 150 | 82 | 13.6 |
| 200 | 89 | 21.5 |
| 250 | 96 | 30.7 |
| 300 | 104 | 40.9 |

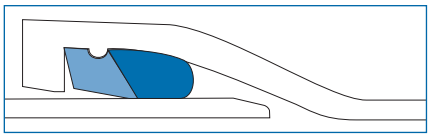
For use with Anchor gaskets to provide a self-restrained end seal.

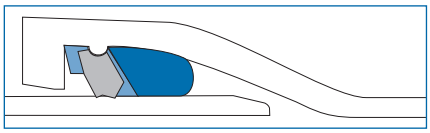



## Tyton and Anchor Gaskets

| DN mm | *Weight Tyton Kg | *Weight Anchor Kg |
|---|---|---|
| 80 | 0.17 | 0.18 |
| 100 | 0.20 | 0.22 |
| 150 | 0.26 | 0.30 |
| 200 | 0.37 | 0.42 |
| 250 | 0.54 | 0.65 |
| 300 | 0.77 | 0.97 |
| 350 | 0.85 | - |
| 400 | 1.10 | 1.40 |
| 450 | 1.20 | - |
| 500 | 1.70 | - |
| 600 | 2.30 | - |
| 700 | 3.4 | - |
| 800 | 4.1 | - |
| 900 | 6.1 | - |
| 1000 | 7.8 | - |

An anchor gasket can be used in a standard Tyton socket to give a self-restrained joint. The gasket contains moulded stainless steel teeth to grip the pipe under pressure and prevent the joint from separating.





Maximum working pressures are listed below.

## Anchor Gaskets

| DN mm | Pressure bar |
|---|---|
| 80 | 30 |
| 100 | 27 |
| 150 | 16 |
| 200 | 15 |
| 250 | 14 |
| 300 | 13 |
| 400 | 10 |

## Angular Deflection

With Tyton gasket:
- DN 80-300 5°
- DN 350-1000 4°

With Anchor gasket
- DN 80-400 3°

## Specification

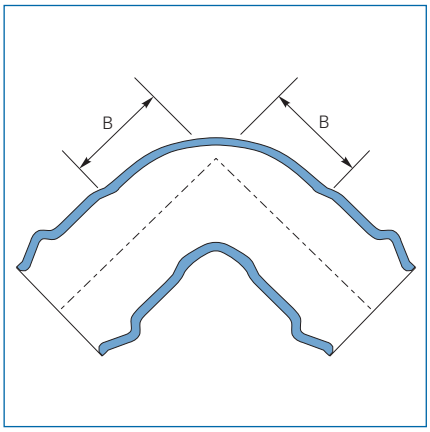
- Fittings are supplied fusion bonded epoxy coated blue as standard, 300 microns thick to WIS 4-52-01
- Fittings are delivered with gaskets and plastic end plugs fitted. Gaskets are WRC approved EPDM or NBR as standard.
- Flanges drilled to PN 16.

## Pressure Ratings

- Maximum working pressure 16 bar
- Maximum site test pressures 25 bar
- Do not exceed manufacturer's recommendations or flange ratings.

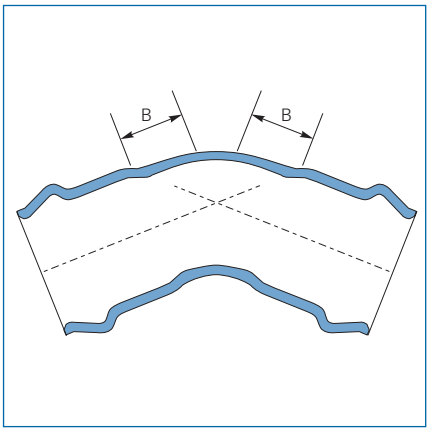
## Double Socket 90° Bends

| DN/Pipe OD mm | B mm | *Weight Kg |
|---|---|---|
| 80/90 | 84 | 5.5 |
| 100/110 | 94 | 7.2 |
| 150/160 | 167 | 15.2 |
| 200/200 | 154 | 22.5 |
| 200/225 | 166 | 30.1 |
| 250/250 | 187 | 42.2 |
| 250/280 | 200 | 53.1 |
| 300/315 | 217 | 66.0 |
| 400/400 | - | 93.3 |
| 400/450 | - | 117.0 |



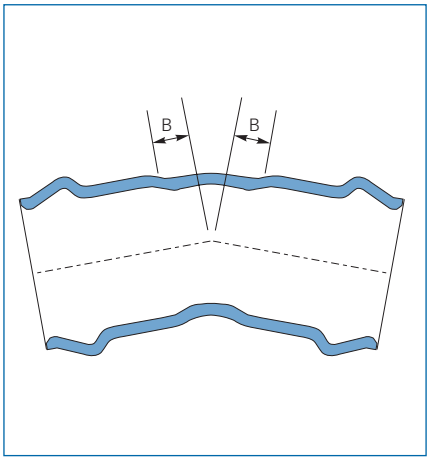

## Double Socket 45° Bends

| DN/Pipe OD mm | B mm | *Weight Kg |
|---|---|---|
| 80/90 | 50 | 4.7 |
| 100/110 | 61 | 8.9 |
| 150/160 | 74 | 12.3 |
| 200/200 | 70 | 16.6 |
| 200/225 | 88 | 24.9 |
| 250/250 | 110 | 32.5 |
| 250/280 | 130 | 39.7 |
| 300/315 | 135 | 58.2 |
| 400/400 | 175 | 100.0 |
| 400/450 | 200 | 97.4 |



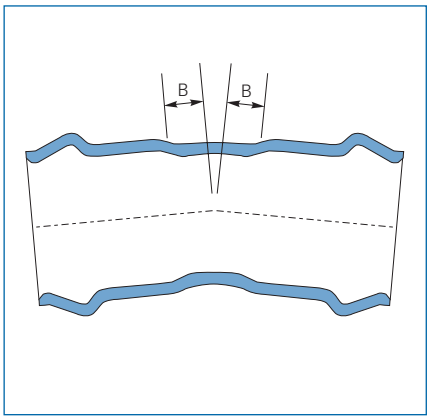

## Double Socket 22½° Bends

| DN/Pipe OD mm | B mm | *Weight Kg |
|---|---|---|
| 80/90 | 25 | 4.0 |
| 100/110 | 30 | 5.1 |
| 150/160 | 35 | 8.6 |
| 200/200 | 55 | 15.7 |
| 200/225 | 45 | 23.0 |
| 250/250 | 74 | 28.6 |
| 250/280 | 84 | 36.5 |
| 300/315 | 92 | 44.5 |
| 400/400 | 126 | 76.9 |



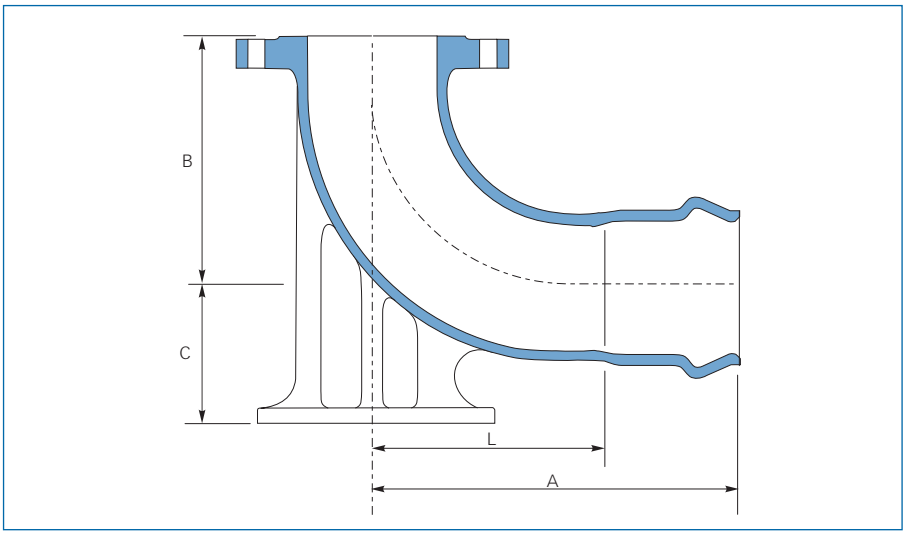

## Double Socket 11¼° Bends

| DN/Pipe OD mm | B mm | *Weight Kg |
|---|---|---|
| 80/90 | 26 | 5.0 |
| 100/110 | 30 | 6.3 |
| 150/160 | 30 | 8.2 |
| 200/200 | 30 | 12.3 |
| 200/225 | 56 | 22.8 |
| 250/250 | 60 | 30.5 |
| 250/280 | 61 | 37.8 |
| 300/315 | 66 | 47.3 |
| 400/400 | 106 | 84.1 |



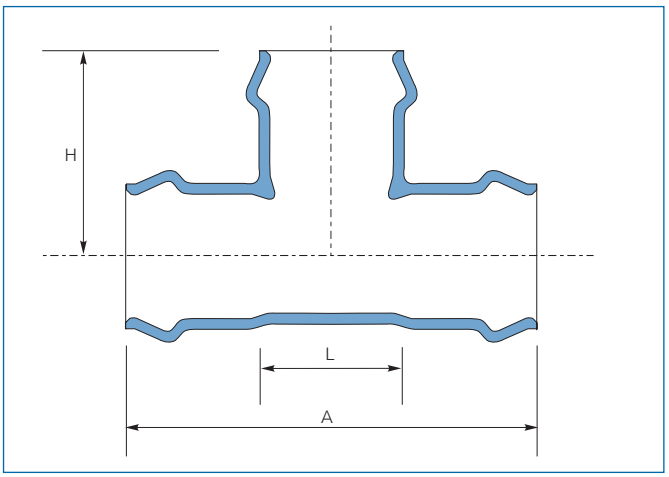

## Flange & Socket 90° Duckfoot Bends

| DN/ Pipe OD mm | Flange DN mm | L mm | A mm | B mm | C mm | Weight Kg |
|---|---|---|---|---|---|---|
| 80/90 | 80 | 150 | 260 | 180 | 108 | 13.0 |
| 100/110 | 80 | 185 | 300 | 180 | 120 | 13.6 |
| 100/110 | 100 | 185 | 295 | 200 | 120 | 18.4 |
| 150/160 | 80 | 130 | 262 | 180 | 155 | 17.2 |
| 150/160 | 150 | 175 | 300 | 220 | 120 | 36.2 |



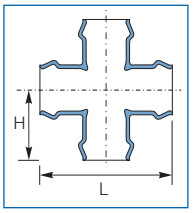
## All Socket Tees, Class K14

| DN/ Pipe OD mm | | L mm | A mm | H mm | Weight Kg |
|---|---|---|---|---|---|
| 80/90 | 80/90 | 101 | 317 | 164 | 9.0 |
| 100/110 | 80/90 | 106 | 327 | 156 | 12.2 |
| 100/110 | 100/110 | 124 | 362 | 180 | 13.7 |
| 150/160 | 80/90 | 118 | 394 | 191 | 19.9 |
| 150/160 | 100/110 | 136 | 413 | 197 | 19.5 |
| 150/160 | 150/160 | 181 | 453 | 228 | 24.8 |
| 200/200 | 80/90 | 95 | 396 | 216 | 26.4 |
| 200/200 | 100/110 | 112 | 418 | 220 | 28.8 |
| 200/200 | 150/160 | 160 | 460 | 253 | 34.0 |
| 200/200 | 200/200 | 210 | 510 | 255 | 38.1 |
| 200/225 | 80/90 | 130 | 449 | 222 | 28.0 |
| 200/225 | 100/110 | 148 | 468 | 226 | 32.1 |
| 200/225 | 150/160 | 193 | 520 | 257 | 36.1 |
| 200/225 | 200/225 | 252 | 570 | 284 | 56.2 |
| 250/250 | 100/110 | 180 | 542 | 234 | 45.0 |
| 250/250 | 150/160 | 205 | 584 | 266 | 74.1 |
| 250/250 | 200/200 | 250 | 634 | 268 | 53.2 |
| 250/250 | 250/250 | 280 | 665 | 332 | 64.4 |
| 250/280 | 80/90 | 142 | 547 | 256 | 48.2 |
| 250/280 | 100/110 | 180 | 547 | 269 | 49.8 |
| 250/280 | 150/160 | 205 | 688 | 295 | 64.4 |
| 250/280 | 200/225 | 304 | 688 | 325 | 69.5 |
| 250/280 | 250/280 | 314 | 688 | 359 | 81.6 |
| 300/315 | 80/90 | 154 | 642 | 277 | 71.2 |
| 300/315 | 100/110 | 172 | 642 | 288 | 71.8 |
| 300/315 | 150/160 | 217 | 642 | 308 | 72.0 |
| 300/315 | 200/225 | 270 | 677 | 331 | 63.2 |
| 300/315 | 250/280 | 310 | 727 | 362 | 101.3 |
| 300/315 | 300/315 | 350 | 756 | 379 | 79.8 |
| 400/400 | 200/225 | 404 | 812 | 368 | 94.2 |
| 400/400 | 300/315 | 485 | 893 | 416 | 108.3 |
| 400/400 | 400/400 | 489 | 937 | 469 | 219.0 |
| 500/500 | 200/225 | 424 | 902 | 418 | 141.1 |



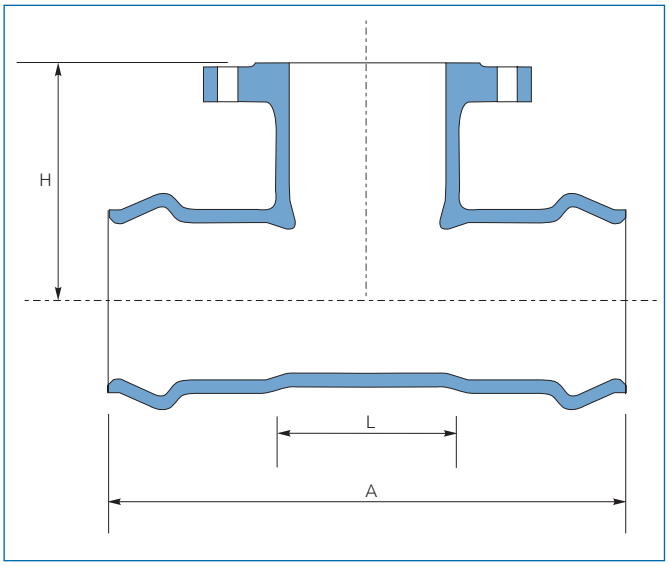

## Double Socket 11¼° Bends

| DN/ Pipe OD mm | L mm | H mm | Weight Kg |
|---|---|---|---|
| 100/110 | 360 | 180 | 18.0 |
| 150/160 | 453 | 226.5 | 33.0 |
| 200/200 | 510 | 255 | 48.0 |



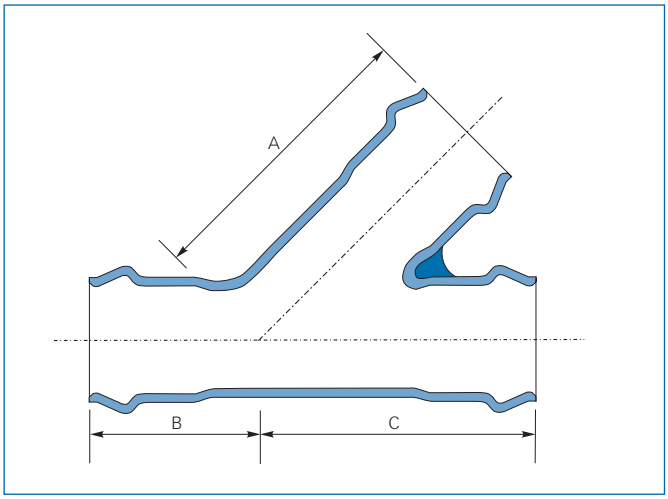

## Flange on Double Socket Tees, Class K14

| DN/ Pipe OD mm | Flange DN mm | L mm | A mm | H mm | Weight Kg |
|---|---|---|---|---|---|
| 80/90 | 80 | 99 | 315 | 161 | 10.6 |
| 100/110 | 80 | 104 | 345 | 172 | 12.2 |
| 100/110 | 100 | 124 | 360 | 172 | 13.3 |
| 150/160 | 80 | 116 | 380 | 199 | 17.0 |
| 150/160 | 100 | 136 | 410 | 208 | 19.9 |
| 150/160 | 150 | 186 | 460 | 218 | 24.1 |
| 200/200 | 80 | 128 | 458 | 223 | 26.9 |
| 200/200 | 100 | 150 | 465 | 240 | 28.9 |
| 200/200 | 150 | 243 | 550 | 273 | 33.9 |
| 200/200 | 200 | 240 | 547 | 280 | 40.9 |
| 200/225 | 80 | 128 | 447 | 251 | 26.8 |
| 200/225 | 100 | 148 | 466 | 251 | 30.4 |
| 200/225 | 150 | 198 | 517 | 251 | 35.6 |
| 200/225 | 200 | 248 | 565 | 251 | 39.3 |
| 250/250 | 80 | 140 | 522 | 250 | 36.8 |
| 250/250 | 100 | 160 | 534 | 255 | 38.1 |
| 250/250 | 150 | 210 | 579 | 265 | 42.9 |
| 250/250 | 200 | 260 | 638 | 275 | 66.0 |
| 250/250 | 250 | 310 | 685 | 285 | 67.9 |
| 250/280 | 80 | 140 | 501 | 282 | 40.5 |
| 250/280 | 100 | 160 | 521 | 288 | 45.9 |
| 250/280 | 150 | 210 | 573 | 288 | 49.4 |
| 250/280 | 200 | 260 | 687 | 285 | 71.4 |
| 250/280 | 250 | 310 | 673 | 287 | 69.3 |
| 300/315 | 80 | 152 | 550 | 305 | 61.7 |
| 300/315 | 100 | 172 | 576 | 309 | 63.6 |
| 300/315 | 150 | 222 | 624 | 309 | 67.4 |
| 300/315 | 200 | 272 | 672 | 292 | 76.8 |
| 300/315 | 250 | 322 | 773 | 305 | 93.8 |
| 300/315 | 300 | 372 | 745 | 309 | 90.0 |
| 400/400 | 80 | 280 | 688 | 316 | 84.0 |
| 400/450 | 80 | 200 | 688 | 341 | 133.6 |
| 400/450 | 100 | 220 | 813 | 356 | 139.0 |
| 400/450 | 150 | 274 | 810 | 360 | 150.0 |
| 400/450 | 200 | 324 | 806 | 365 | 158.0 |
| 400/450 | 400 | 527 | 960 | 394 | 219.0 |
| 500/500 | 80 | 300 | 778 | 366 | 119.8 |



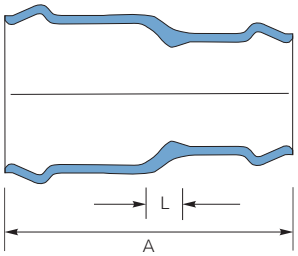
## All Socket 45° Angle Branches

| DN/ Pipe OD Body mm | DN/ Pipe OD Branch mm | A mm | B mm | C mm | Weight Kg |
|---|---|---|---|---|---|
| 80/90 | 80/90 | 235 | 140 | 235 | 8.8 |
| 100/110 | 80/90 | 250 | 140 | 250 | 10.8 |
| 100/110 | 100/110 | 270 | 155 | 270 | 15.0 |
| 150/160 | 80/90 | 305 | 145 | 280 | 17.3 |
| 150/160 | 100 | 320 | 155 | 295 | 18.3 |
| 150/160 | 150 | 345 | 190 | 345 | 29.5 |
| 300/315 | 80/90 | 460 | 175 | 385 | 69.0 |



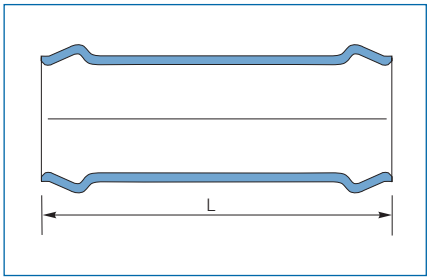

## Double Socket Tapers

| DN/ Pipe OD Large mm | DN/ Pipe OD Small mm | L mm | A mm | Weight Kg |
|---|---|---|---|---|
| 100/110 | 80/90 | 44 | 305 | 10.8 |
| 150/160 | 80/90 | 44 | 305 | 10.8 |
| 150/160 | 100/110 | 53 | 303 | 11.0 |
| 200/200 | 80/90 | 101 | 361 | 13.3 |
| 200/200 | 100/110 | 84 | 350 | 12.8 |
| 200/200 | 150/160 | 71 | 370 | 19.2 |
| 200/225 | 100/110 | 84 | 370 | 17.7 |
| 200/225 | 150/160 | 71 | 372 | 21.4 |
| 250/250 | 150/160 | 102 | 407 | 22.2 |
| 250/250 | 200/200 | 79 | 428 | 25.2 |
| 250/280 | 100/110 | 114 | 420 | 29.1 |
| 250/280 | 150/160 | 102 | 445 | 32.0 |
| 250/280 | 200/225 | 79 | 457 | 34.2 |
| 400/400 | 300/315 | 190 | 560 | 56.0 |



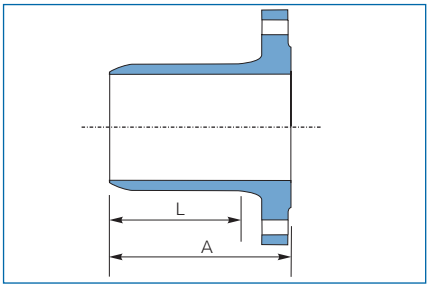

## Double Socket Collars

| DN/Pipe OD mm | H mm | *Weight Kg |
|---|---|---|
| 80/90 | 270 | 5.4 |
| 100/110 | 290 | 7.3 |
| 150/160 | 312 | 13.1 |
| 200/200 | 350 | 16.1 |
| 200/225 | 451 | 23.6 |
| 250/280 | 494 | 40.6 |
| 300/315 | 610 | 55.2 |
| 400/450 | 610 | 132.6 |
| 500/500 | 730 | 95.4 |



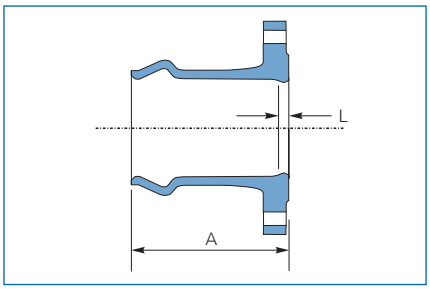

## Flanged Spigots

| DN/ Pipe OD mm | A mm | L mm | Weight Kg |
|---|---|---|---|
| 80/90 | 134 | 103 | 5.1 |
| 100/110 | 149 | 117 | 6.1 |
| 150/160 | 168 | 134 | 10.2 |
| 200/200 | 225 | 185 | 15.2 |
| 200/225 | 204 | 172 | 16.8 |
| 250/250 | 248 | 220 | 27.7 |
| 250/280 | 246 | 215 | 27.7 |
| 300/315 | 233 | 190 | 37.2 |



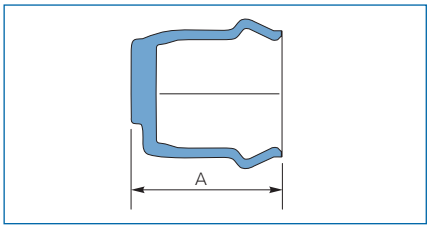

## Flanged Sockets

| DN/ Pipe OD mm | H mm | L mm | Weight Kg |
|---|---|---|---|
| 80/90 | 120 | 14 | 4.6 |
| 100/110 | 130 | 15 | 5.6 |
| 150/160 | 150 | 15 | 9.8 |
| 200/200 | 192 | 34 | 15.9 |
| 200/225 | 192 | 34 | 16.2 |
| 250/250 | 220 | 41 | 30.0 |
| 250/280 | 220 | 41 | 25.2 |
| 300/315 | 240 | 49 | 35.0 |
| 400/400 | 295 | 71 | 69.6 |
| 500/500 | 340 | 76 | 98.0 |
| 600/630 | 425 | 90 | 136.0 |




## Caps

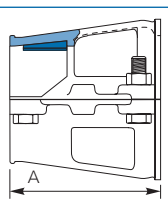
| DN/Pipe OD mm | A mm | Weight Kg |
|---|---|---|
| 80/90 | 140 | 3.4 |
| 100/110 | 144 | 4.7 |
| 150/160 | 177 | 8.9 |
| 200/225 | 210 | 17.5 |
| 250/280 | 241 | 26.8 |




## Anchor Clamps for Joint Restraint

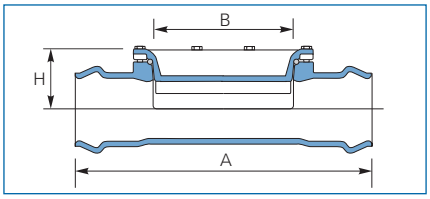
| DN/Pipe OD mm | A mm | Weight Kg |
|---|---|---|
| 80/90 | 140 | 4.9 |
| 100/110 | 160 | 6.5 |
| 150/160 | 170 | 9.8 |
| 200/225 | 220 | 16.9 |
| 250/280 | 315 | 39.4 |
| 300/315 | 330 | 50.7 |

Suitable for PN16 applications

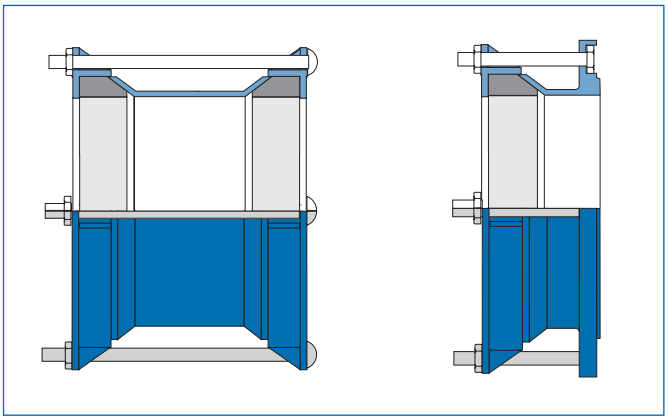



## Double Socket Hatch Boxes

| DN/ Pipe OD mm | A mm | B mm | H mm | Weight Kg |
|---|---|---|---|---|
| 100/110 | 505 | 100 x 250 | 117 | 19.4 |
| 150/160 | 615 | 150 x 300 | 132 | 34.0 |
| 200/225 | 750 | 200 x 350 | 170 | 59.6 |



## Universal (Wide Range) Couplings and Flange Adaptors

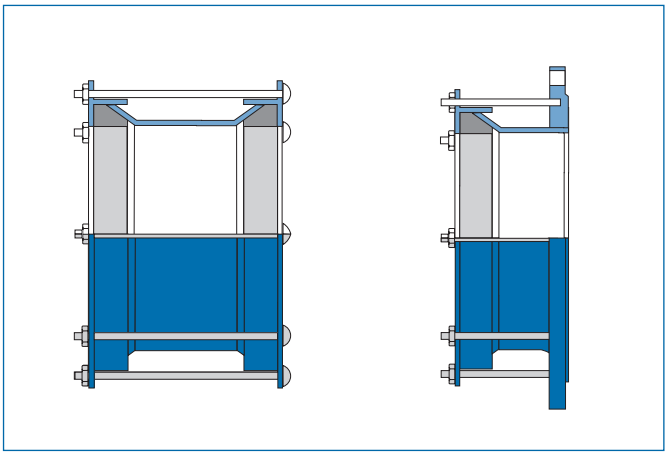


| DN mm | DN in | Pipe OD (mm) min | Pipe OD (mm) max | Flange details mm | Flange details BS 4504 | Flange details BS 10 |
|---|---|---|---|---|---|---|
| 50 | 2 | 60 | 72 | 50 | PN10, PN16 | - |
| 80 | 3 | 88 | 102.5 | 80 | PN10, PN16 | A, D, E |
| 100 | 4 | 108 | 124 | 100 | PN10, PN16 | A, D, E |
| 150 | 6 | 159 | 179 | 150 | PN10, PN16 | A, D, E |
| 200 | 8 | 219 | 234 | 200 | PN10, PN16 | A, D, E |
| 250 | 10 | 273 | 290 | 250 | PN10, PN16 | D, E |
| 300 | 12 | 324 | 338 | 300 | PN16 | D, E |

## Material Specification

- Couplings
  Gland rings and centre sleeve
  Ductile iron - to ISO 1083:1987
  or
  Steel to BS4360:1986, Grade 43A
- Flange Adaptors
  Gland ring and body
  Ductile iron - to ISO 1083:1987
  or
  Steel to BS4360:1986, Grade 43A
- Seals
  EPDM or Nitrile BGC/PS/LC6 to BS 2494:1990
- Fasteners
  Bolts to: BS 4933:1973 (couplings)
  BS4190:1967 (flange adaptors)
  Washers to: BS4320:1968
- Protective coatings
  Body Nylon 11 or fusion bonded epoxy coated blue, 250 microns (minimum average thickness)
  Fasteners Nylon 11 or fusion bonded epoxy coated blue.

## Dedicated Couplings & Flange Adaptors for Ductile Iron



| DN mm | Pipe OD mm | DN mm | Pipe OD mm |
|---|---|---|---|
| 80 | 98 | 500 | 532 |
| 100 | 118 | 600 | 635 |
| 150 | 170 | 700 | 738 |
| 200 | 222 | 800 | 842 |
| 250 | 274 | 900 | 945 |
| 300 | 326 | 1000 | 1048 |
| 350 | 378 | 1100 | 1152 |
| 400 | 429 | 1200 | 1255 |
| 450 | 480 | 1400 | 1462 |
| | | 1600 | 1668 |

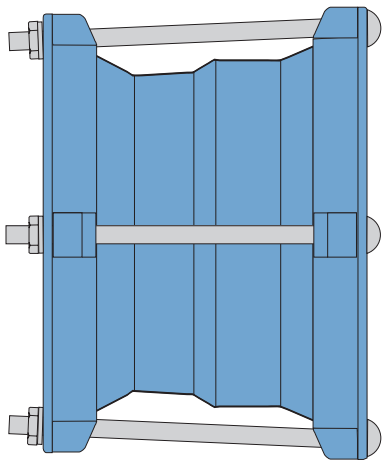
## Material Specification

- Couplings
  Gland rings and centre sleeve
  Steel to BS4360:1986, Grade 43A
- Flange Adaptors
  Sleeve and Gland ring
  Steel to BS4360:1986, Grade 43A
  Flange Ring
  Ductile iron - to ISO 1083:1987
  or
  Steel to BS4360:1986, Grade 43A
- Seals
  EPDM or Nitrile BGC/PS/LC6 to BS 2494:1990
- Fasteners
  Bolts to: BS 4933:1973 (couplings)
  Studs to: BS4439:1969 (flange adaptors)
  Washers to: BS4320:1968
- Protective coatings
  Body Nylon 11 or fusion bonded epoxy coated blue, 250 microns (minimum average thickness)
  Fasteners Nylon 11 or fusion bonded epoxy coated blue.

## Notes

- Couplings and Flange Adaptors are also available for Polyethylene Pipe

## Stepped Couplings



Couplings are available to connect pipes of different materials to a maximum difference in OD of 70mm.

Please refer to the table below. Where the difference is greater other solutions are available. Please consult our Sales staff for further information.

- Gland rings and centre sleeve
  Steel to BS4360:1986, Grade 43A
- Seals
  EPDM or Nitrile BGC/PS/LC6 to BS 2494:1990
- Fasteners
  Bolts to: BS 4933:1973 (couplings)
  Studs to: BS4439:1969 (flange adaptors)
  Washers to: BS4320:1968
- Protective coatings
  Body Nylon 11 or fusion bonded epoxy coated blue, 250 microns (minimum average thickness)
  Fasteners Nylon 11 or fusion bonded epoxy coated blue.

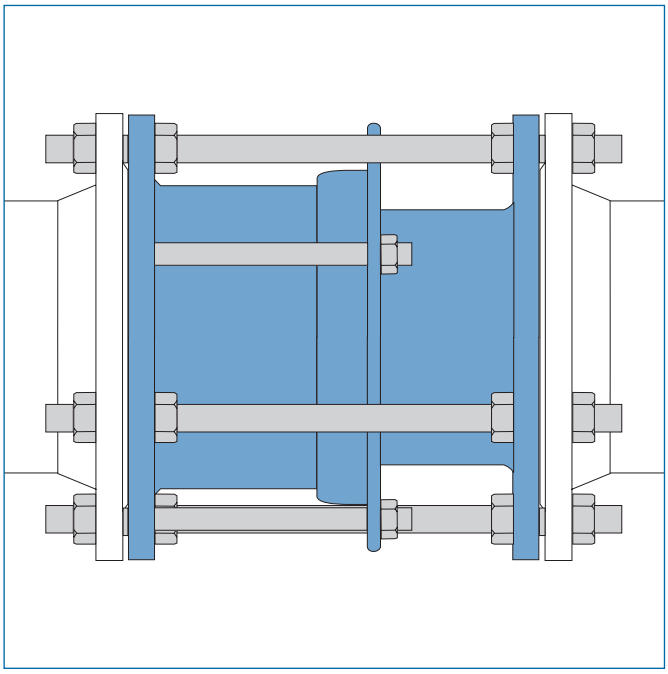
## Table of Pipe Outside Diameters (in mm)

| DN | | Ductile Iron | Cast Iron & Imperial A C (turned spigot) | | | Steel | | | | | | | UPVC | | ABS | Metric AC (turned spigot) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EN 545 EN 598 | BS 78 1981 Class | BS1211 Class | BS 78 BS 486 Class | ISO 4200 | | | | | | | | | | BS 486 1981 | | |
| mm | inch | ISO 2531 | ABCD | AB | CD | Series 1 | Series 2 | Series 3 | BS 1387 | BS534 | BS3600 | API SL | BS 3505 | BS 3506 | BS5391 | Class 15 | Class 20 | Class 25 |
| 80 | 3 | 98 | - | 96 | 96 | 89 | - | 83 | 88.9 | 88.9 | 88.9 | 88.9 | 88.9 | 88.9 | 88.9 | - | - | 96 |
| 90 | 3.5 | - | - | - | - | 101.6 | 101.6 | - | - | - | 101.6 | 101.6 | - | - | - | - | - | - |
| 100 | 4 | 118 | - | 121.9 | 121.9 | 114.3 | 127 | 108 | 114.3 | 114.3 | 114.3 | 114.3 | 114.3 | 114.3 | 114.3 | - | - | 122 |
| 125 | 5 | 144* | - | 141.9 | 141.9 | 139.7 | 133 | 141.3 | 139.7 | 139.7 | 139.7 | 141.3 | 140.2 | 140.2 | - | - | - | - |
| 150 | 6 | 170 | - | 177.3 | 177.3 | 168.3 | - | 159 | 165.1 | 168.3 | 168.3 | 168.3 | 168.3 | 168.3 | 168.3 | 177 | - | 177 |
| 175 | 7 | - | - | 204.7 | 204.7 | - | - | 193.7 | - | 193.7 | 193.7 | - | - | 193.7 | - | - | - | - |
| 200 | 8 | 222 | - | 232.2 | 232.2 | 219.1 | - | - | - | 219.1 | 219.1 | 219.1 | 219.1 | 219.1 | 219.1 | 232 | 232 | 240 |
| 225 | 9 | - | - | 259.1 | 259.1 | - | - | 244.5 | - | 244.5 | 244.5 | - | - | 244.5 | - | 259 | 259 | 268 |
| 250 | 10 | 274 | - | 286.0 | 286.0 | 273 | - | - | - | 273 | 273 | 273 | 273 | 273 | - | 286 | 286 | 295 |
| 300 | 12 | 326 | - | 333.8 | 345.4 | 323.9 | - | - | - | 323.9 | 323.9 | 323.9 | 323.9 | 323.9 | - | 334 | 345 | 356 |
| 350 | 14 | 378 | - | 386.6 | 399.3 | 355.6 | - | - | - | 355.6 | 355.6 | 355.6 | 355.6 | 355.6 | - | 392 | 405 | 419 |
| 375 | 15 | - | - | 413 | 426.2 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 400 | 16 | 429 | - | 439.4 | 453.1 | 406.4 | - | - | - | 406.4 | 406.4 | 406.4 | 406.4 | 406.4 | - | 448 | 463 | 478 |
| 450 | 18 | 480+ | - | 492.3 | 506.9 | 457 | - | - | - | 457 | 457 | 457 | 457 | 457 | - | 498 | 515 | 532 |
| 500 | 20 | 532 | - | 545.1 | 560.3 | 508 | - | - | - | 508 | 508 | 508 | 508 | 508 | - | 568 | 586 | 605 |
| 525 | 21 | - | - | 571.5 | 587.2 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 550 | 22 | - | - | 597.9 | 613.7 | - | - | 559 | - | 559 | 559 | 559 | - | 559 | - | - | - | - |
| 600 | 24 | 635 | - | 650.2 | 667 | 610 | - | - | - | 610 | 610 | 610 | 610 | 610 | - | 654 | 672 | 691 |
| 650 | 26 | - | - | 702.6 | 720.3 | - | - | 660 | - | 660 | 660 | 660 | - | - | - | - | - | - |
| 675 | 27 | - | - | 728.9 | 746.8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 700 | 28 | 738 | - | 754.9 | 773.2 | 711 | - | - | - | 711 | 711 | 711 | - | - | - | 761 | 780 | 801 |
| 750 | 30 | - | 826 | 807.2 | 826 | - | 762 | - | - | 762 | 762 | 762 | - | - | - | 808 | 830 | 852 |
| 800 | 32 | 842 | - | 859.5 | 879.3 | 813 | - | - | - | 813 | 813 | 813 | - | - | - | 869 | 891 | 915 |
| 825 | 33 | - | 905.8 | 886 | 905.8 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 850 | 34 | - | - | 912.4 | - | - | - | 864 | - | 864 | 864 | 864 | - | - | - | 927 | 952 | 977 |
| 900 | 36 | 945 | 984.5 | 964.2 | 984.5 | 914 | - | - | - | 914 | 914 | 914 | - | - | - | 970 | 996 | 1024 |
| 1000 | 40 | 1048 | - | 1068.3 | 1090.2 | 1016 | - | - | - | 1016 | 1016 | 1016 | - | - | - | - | - | - |
| 1050 | 42 | - | 1143 | 1120.6 | 1143.0 | 1067 | - | - | - | - | - | 1067 | - | - | - | - | - | - |
| 1100 | 44 | 1152 | - | 1172.5 | - | 1118 | 1168 | - | - | - | - | 1118 | - | - | - | - | - | - |
| 1200 | 48 | 1255 | 1300.5 | 1276.6 | 1300.5 | 1219 | - | - | - | 1220 | 1220 | 1220 | - | - | - | - | - | - |
| 1400 | - | 1462 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1600 | - | 1668 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

* DIN 28601/3 only
\+ Refer to BS4772

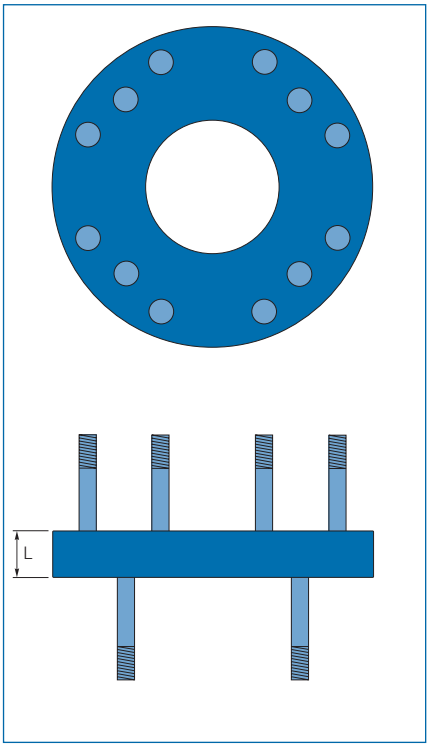
## Dismantling Joints - u.t.i. DN 1200

The range of flanged dismantling joints has been produced to give additional adjustment length and to help future pipework modifications.
All sizes from DN 50-1200 available with PN16 or PN10 flanges.
The maximum adjustment length on all sizes is 50mm.
Material Specification



- Body and End rings
  Either ductile iron or steel
- Gaskets
  EPDM or Nitrile BGC/PS/LC6 to BS 2494:1990
- Fasteners
  To: BS 4933:1973
  BS 4190:1967
- Washers
  To: BS 4320:1968
- Protective coatings
  Body Fusion bonded epoxy coated, blue as standard
  Fasteners Fusion bonded epoxy coated, blue as standard

## Studded Flange Convertors - u.t.i. DN 1200




Flange convertors provide an ideal method of converting imperial flanges to metric and also for stepping up / down in size within confined areas where the standard taper cannot be used.
The maximum adjustment length on all sizes is 50mm.
Material Specification

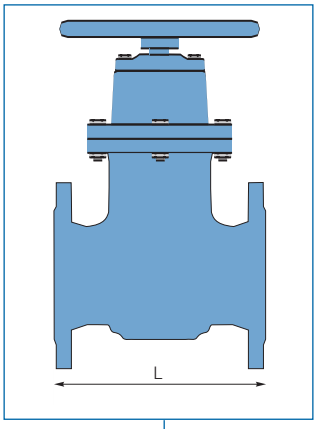
- Flange
  Either ductile iron or steel
- Gaskets
  EPDM or Nitrile BGC/PS/LC6 to BS 2494:1990
- Fasteners
  Studs: Stainless steel, galvanised or black
- Protective coatings
  Body Fusion bonded epoxy, coated blue as standard
  Bitumen

L = 40mm as standard
Other thicknesses may be supplied on request

### Flange Options

| Specification | | Size range |
|---|---|---|
| BS 4504 | PN10, PN16, PN25, PN40 | 50 - 1200mm |
| BS 10 | Tables A, D, E, F | 2 - 48 in |
| ANSI 125, ASA 125/250 | | 2 - 48 in |

## Gate Valves




| DN mm | L mm |
|---|---|
| 50 | 178 |
| 65 | 190 |
| 80 | 203 |
| 100 | 229 |
| 125 | 254 |
| 150 | 267 |
| 200 | 292 |
| 250 | 330 |
| 300 | 356 |
| 350 | 381 |
| 400 | 406 |
| 450 | 432 |
| 500 | 457 |
| 600 | 508 |
| 700 | 610 |
| 800 | 660 |
| 900 | 711 |
| 1000 | 811 |

**Specification**
All to BS 5163, type B
Rating 16 bar
Flanged PN16
Cap top as standard
Clockwise closure as standard

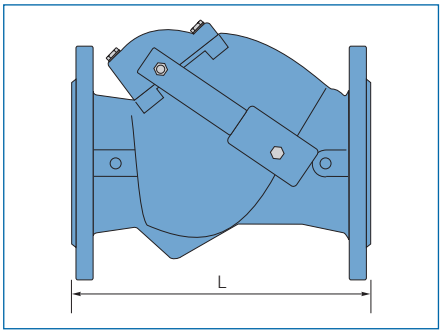
**Resilient seated (u.t.i. DN 400)**
Cast iron body
Resilient seated nitrile covered gate
Non-rising spindle of high tensile bronze with toroidal 'O' ring spindle seal
Fusion bonded epoxy coating, WRC approved

**Metal faced (u.t.i. DN 300)**
Cast iron body
Non-ferrous faces to body and wedge
Non-rising spindle of high tensile bronze with toroidal 'O' ring spindle seal
Fusion Bonded Epoxy coating, WRC approved

**Metal faced (above DN 300)**
Cast iron body
Non-ferrous faces to body and wedge
Non-rising spindle of high tensile bronze with packed gland spindle seal
Fusion Bonded Epoxy coating, WRC approved

**Options**
Handwheel (as illustrated)
Anti clockwise closure
Rising spindle
Fusion bonded epoxy coating for metal faced valves
Full range of accessories, see pages 32 and 33

## Non Return Valves




| DN mm | L mm |
|---|---|
| 50 | 203 |
| 65 | 216 |
| 80 | 241 |
| 100 | 292 |
| 125 | 356 |
| 150 | 356 |
| 200 | 495 |
| 250 | 622 |
| 300 | 698 |
| 350 | 788 |
| 400 | 915 |
| 450 | 965 |
| 500 | 1067 |
| 600 | 1219 |
| 700 | 1420 |
| 800 | 1560 |

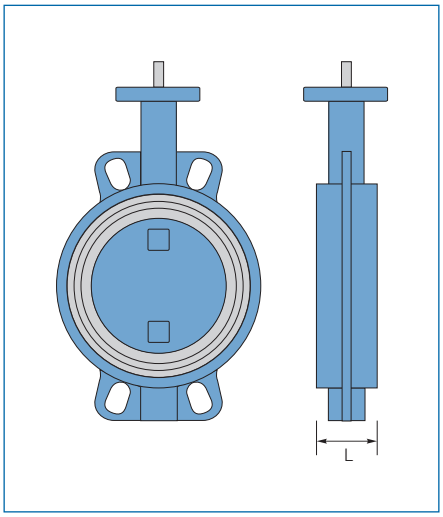
**Specification**
Valves to BS 5153
Rating 16 bar
Flanged PN16

**Resilient seated (up to DN 300)**
Ductile iron body and disc
Resilient seated disc
Stainless steel hinge pin
WRC approved coating
As standard, valves are offered without lever and weight and are suitable for velocities up to 3 metres per second.
Contact us with full details of requirements above this figure

**Metal faced (up to DN 600)**
Cast iron body and disc
Non-ferrous faces to body and disc
Stainless steel hinge pin
WRC approved coating
As standard, valves are offered without lever and weight and are suitable for velocities up to 3.5 metres per second.
Contact us with full details of requirements above this figure.

**Options**:
Lever and weight (as illustrated)
Guards

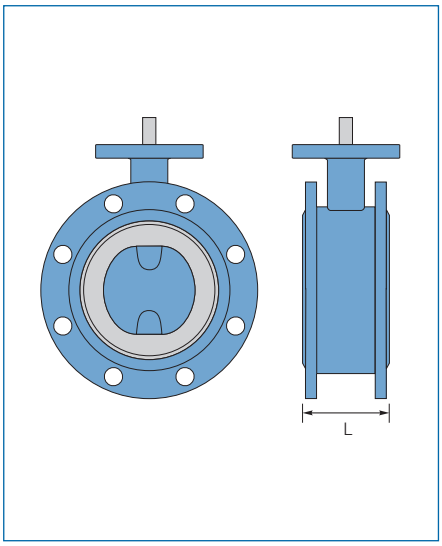
## Wafer Butterfly Valves




| DN mm | L mm |
|---|---|
| 50 | 43 |
| 65 | 46 |
| 80 | 46 |
| 100 | 52 |
| 125 | 56 |
| 150 | 56 |
| 200 | 60 |
| 250 | 68 |
| 300 | 78 |
| 350 | 78 |
| 400 | 86 |
| 450 | 105 |
| 500 | 130 |
| 600 | 150 |

Wafer pattern to BS 5155
16 bar rated up to 300mm,
10 bar rated 350-600mm
To fit between PN16 flanges
Partial lugged cast iron body
Ductile iron nickel plated disc
410 stainless steel shafts
Renewable nitrile body lining
Epoxy coated
Lever or gear box operated
u.t.i. 300mm
Gearbox or handwheel operated 350-600mm

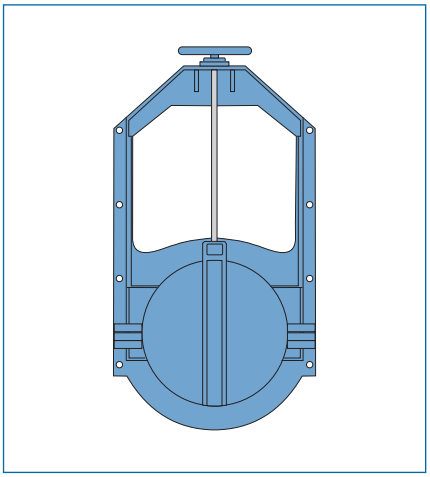
## Double Flanged Butterfly Valves




| DN mm | L mm |
|---|---|
| 80 | 114 |
| 100 | 127 |
| 125 | 140 |
| 150 | 140 |
| 200 | 152 |
| 250 | 165 |
| 300 | 178 |
| 350 | 190 |
| 400 | 216 |
| 450 | 222 |
| 500 | 229 |
| 600 | 267 |
| 700 | 292 |
| 800 | 318 |
| 900 | 330 |
| 1000 | 410 |
| 1100 | 440 |
| 1200 | 470 |
| 1400 | 530 |

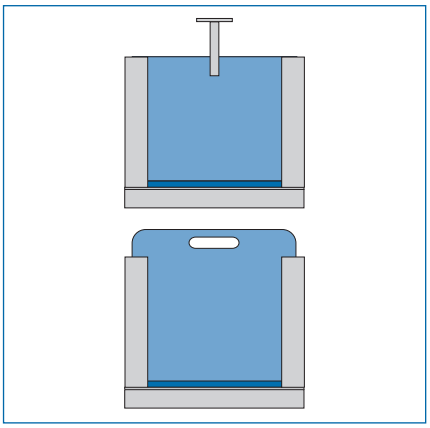
To ISO 5752/BS 5155 short pattern with double offset disc design.
Drillings BS 4504 to PN 16
Ductile iron body, disc and seal retaining ring
Nitrile rubber N167 disc seal
Operating shafts and shaft pins of stainless steel BS 970 Grade 431.
Bearings are WRC listed Devlon 'V'.
All 'O' ring seals are BS listed nitrile.
Internal fastenings and construction screws stainless steel A2
WRC approved epoxy coating to 350 microns
Also available in long body design.

## Penstocks - to BS7775:1995



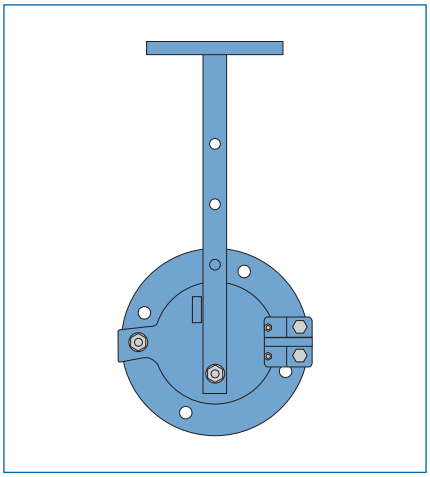
U.t.i. 1000mm square or circular aperture
Suitable for up to 6 metres on-seating pressure and limited off-seating pressure dependant on size
Clockwise closure as standard
Cast iron frame with flat back for wall mounting
Cast iron door with side wedges
Non-ferrous sealing faces to frame and door
Stainless steel non-rising spindle
**Options**
Sizes up to 2000mm
Fabricated
Higher pressure ratings
Flanged or channel fixing
Rising stem

## Handstop - Watertight



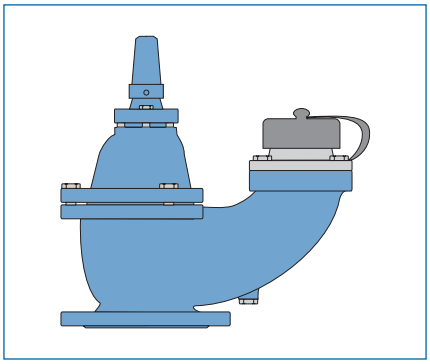
Fabricated to customer requirements
Wall or channel fixing
Galvanised frame to BS 729
Neoprene strip seals
OP4 polythene plastic door
Tee handle(s) 100mm above door as standard
**Options**
Other construction materials
Slotted handles

## Disc Flushing Valve u.t.i. DN 450



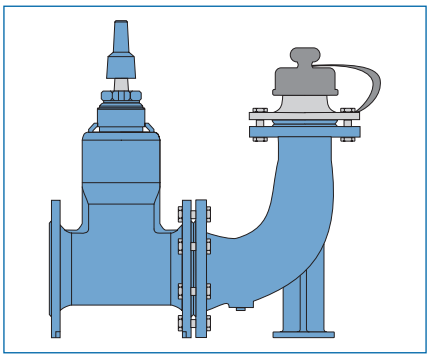
Cast iron circular frame for wall mounting
Cast iron door with side pivot
Non-ferrous sealing faces
1 metre long mild steel lifting handle and including one off wall peg
WRC approved coating
**Options**
Flange fixing
Longer handles available if required

## Fire Hydrants - Type 2



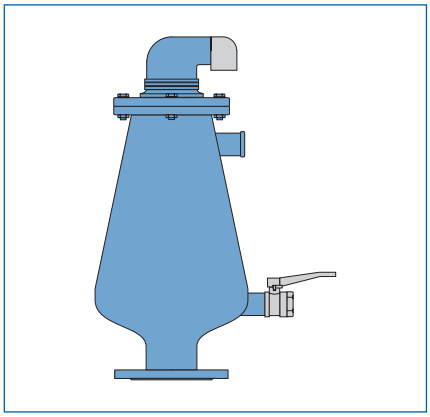
Flanged PN 16
Cast iron body, bonnet and stem seal housing
Non-rising stem
Gunmetal (round thread) screwed outlet
Captive polythene outlet cap
Copper alloy seat ring
Supplied with cap top for manual operation
WRC epoxy coated

## Fire Hydrants - Type 1



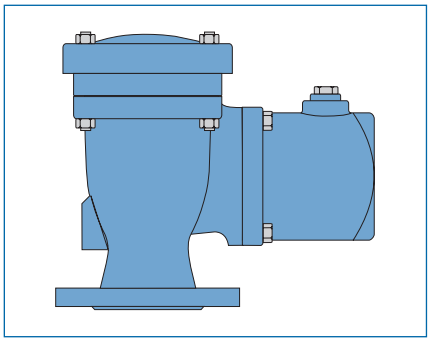
To BS 750
80mm PN 16 inlet flanges
Cast iron gate valve and 90° duckfoot bend
2 1/2" gunmetal round threaded outlet
Outlet cap
WRC epoxy coated as standard

## Sewage Air Valves



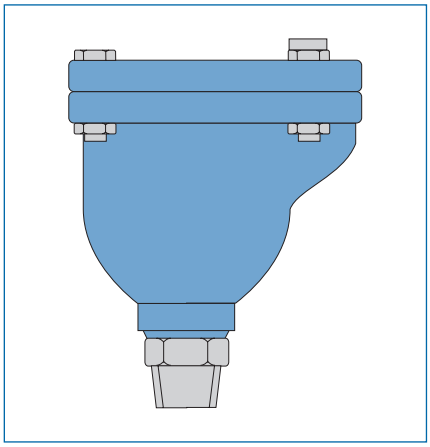
Rated 16 bar high, 0.2 bar low (as standard)
Flanged to PN16
Cast aluminium body, double orifice
Stainless steel float assembly
Outlet body nylon with reinforced fibre glass
Nitrile rubber 'O' rings
Nylon coated
**Options**
Single orifice valve

## Double Air Valve - Clean Water



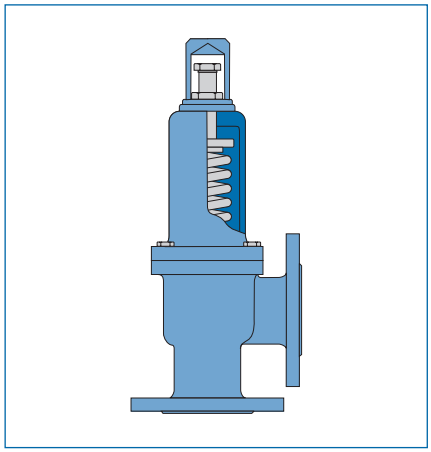
Double orifice type
Flanged to PN 16
Cast iron body, with ball guide
Moulded rubber seat and air release nipple
ABS float
Fully WRC approved

## Single Air Valve - Clean Water



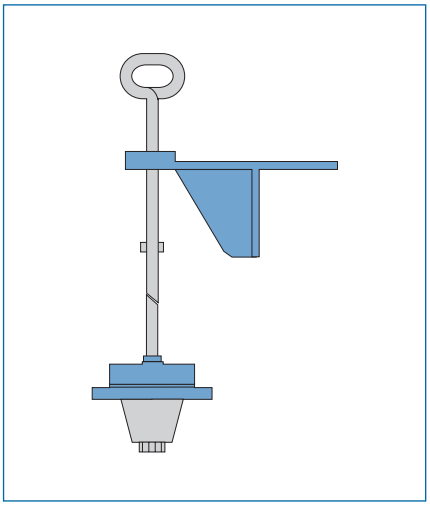
Flanged PN 16 or BSP screwed
Cast iron body, with ball guide
Moulded rubber seal and air release nipple
CAF washer
Fully WRC approved
**Options**
Isolator

## Spring Relief Valves



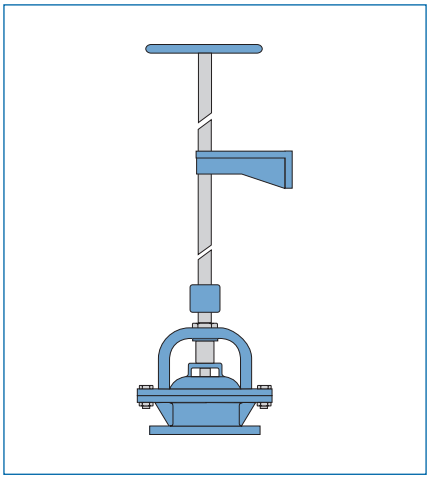
Minimum set pressure 5 p.s.i.
Maximum set pressure 230 p.s.i.
BS 4504, BS 10, ANSI B16, 1 flanged drillings available
Angular or straight through pattern
Cast iron body and cover to BS 1452
Gunmetal disc and seat
Alloy steel spring, chrome vanadium coated
Coated with WRC approved bituminous

## Hand Lifting Plug Valves



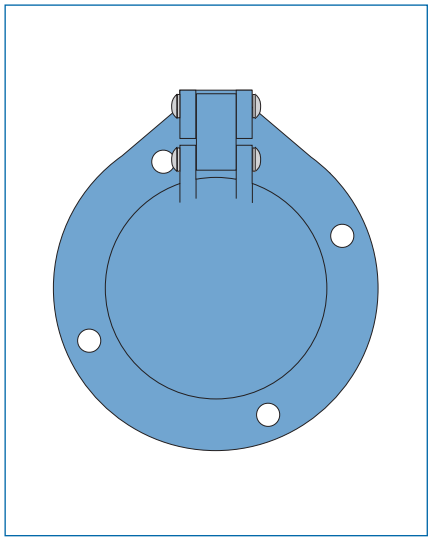
Flanges to PN 16
Cast iron body
Gunmetal seating faces
Composite cone shaped plug on lifting rod
Standard 1 metre length handle
Standard outreach wall bracket
Black bitumen coating, WRC approved

## Sludge Valves



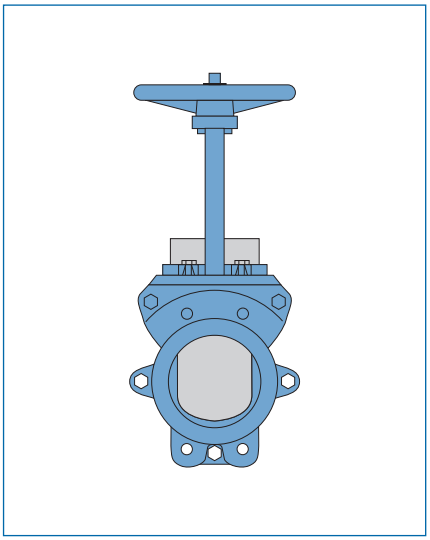
Flanged PN 16
Cast iron body
Gunmetal faces between disc and frame
Rising stainless steel screw spindle driving through gunmetal nut
Cast iron yoke cap top
For extension spindle and key operation
Black bitumen coating, WRC approved

## Flap Valves u.t.i. DN 600



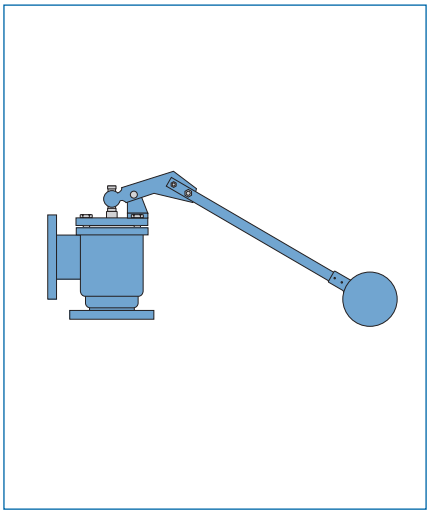
Flat backed for either wall or flange fixing (PN16 as standard)
Cast ductile iron frame and door
Non-ferrous sealing faces to both frame and door
Double hung type door with vandal resistant stainless steel hinge pins
WRC approved bitumen coating
Options
Epoxy coating
Larger diameters available in both cast iron and fabricated construction

## Knife Edge Valve u.t.i. DN 250



To fit between PN16 or PN10 flanges
Rating 10 bar
Cast iron body
304 stainless steel blade
Nitrile seal
Soft cotton mica-lube gland packing, 416 stainless steel stem (rising or non-rising)
Coating, 2 coats alkyd resin or WRC approved black bitumen
Options
Valves DN 300-600 on request.

## Equilibrium Float Valves



DN 50 to 300
Angular or straight through pattern
Cast iron to BS 1452 body and cover
Gunmetal to BS 1400 LG2 valve seat and cylinder
Valve disc is EPDM rubber bonded to steel reinforcing plate
EPDM piston seal
Float Rilsan nylon coated fused to a steel float
WRC approved coating
Options
Larger sizes on request

## Ball Valves, 1/8" to 12"

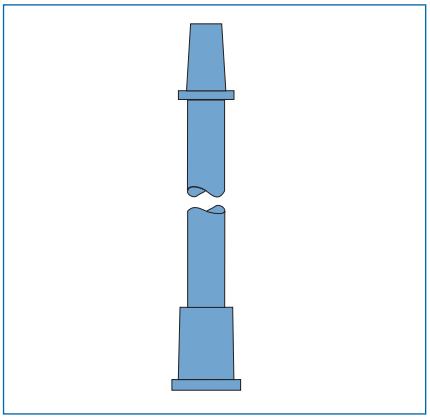
For domestic or industrial markets
Pressure rating Class 150-2500
Various flanged drillings or BSP screw
Full bore or reduced bore
3 way or straight through
Brass, bronze, cast iron, stainless steel or carbon steel
Options
Locking devices, Actuation

## Also Available but not Illustrated

Products
- Wafer Check Valves
- Spring Loaded NRVs
- Double Check Valves
- Recoil NRVs
- Ball Check Valves
- Foot Valves & Strainers
- Stop Logs
- Floating Arms
- Hydrostatic Valves
- Ventilation Columns
- Swan Neck Ventilators
- Pressure Reducing Valves
- Water Meters
- Electronic Flow Meters

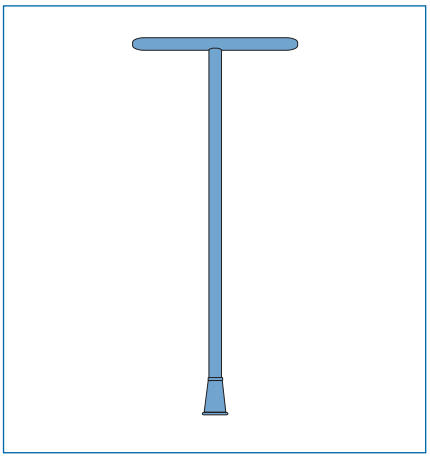
Services
- Valve Refurbishments
- Drilling & Tapping of Valves

## Extension Spindles



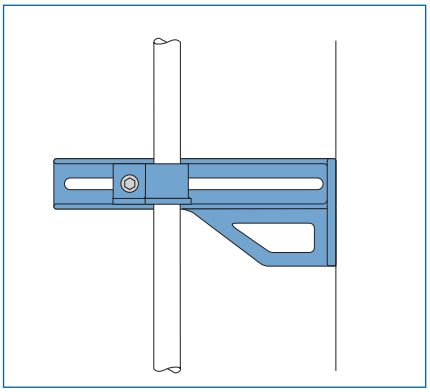
Square top and socket to BS 5163 to suit all BS gate valves, penstocks etc.
Top and socket in ductile iron (Grade 420/12 or 500/7)
Spindle, WRC approved bitumen coated mild steel as standard
Galvanised or stainless steel, 316L, optional
Muff couplings are required when the extension is longer than 4 metres.

## Tee Keys



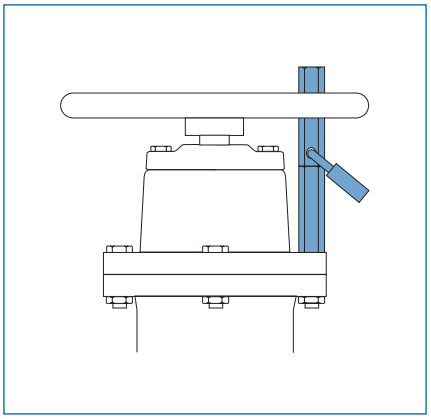
To BS 5163 requirements
Solid state tee key or ring key and bar
Mild steel as standard.
Various paint finishes.
Galvanised or stainless steel optional.
1 metre long as standard, other lengths available to customer requirements

## Guide Brackets



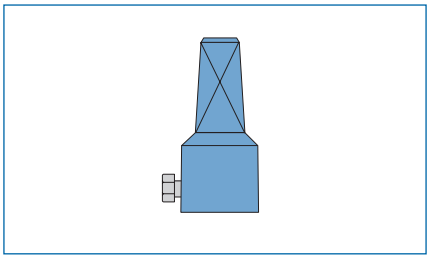
Cast iron or heavy duty galvanised mild steel
Adjustable outreach 50-350mm as standard
Longer outreach optional

## Locking Devices



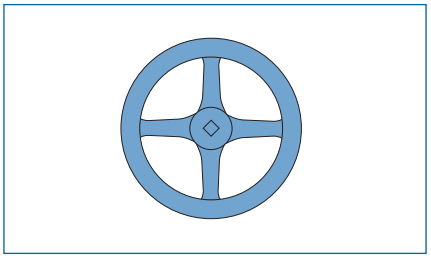
Locking devices of different types available for all hand operated valves e.g. ball valves, gate valves, penstocks etc.
Illustrated device made from stainless steel

## Locking Devices



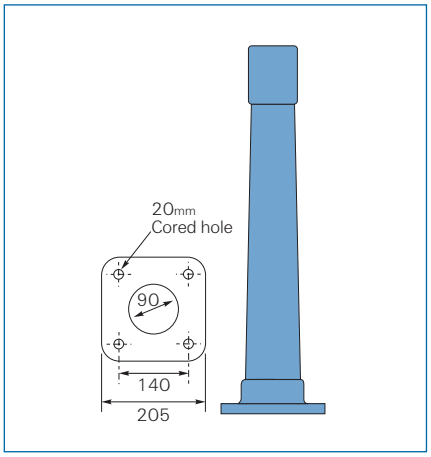
Locking devices of different types available for all hand operated valves e.g. ball valves, gate valves, penstocks etc.
Illustrated device made from stainless steel.

## Locking Devices



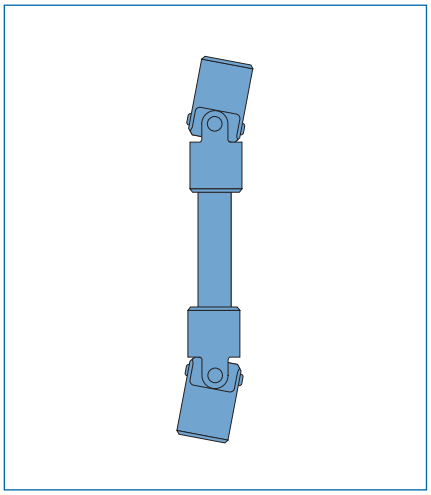
Locking devices of different types available for all hand operated valves e.g. ball valves, gate valves, penstocks etc.
Illustrated device made from stainless steel.

## Pillars



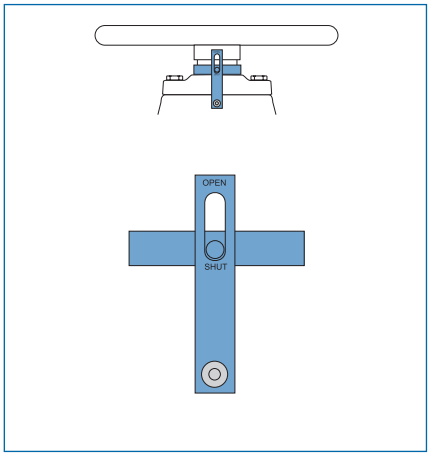

Ductile iron (as illustrated) or galvanised mild steel
Non-indicating as standard
Indicating optional
Bitumen coated as standard
Weight of ductile iron pillar, 36 Kg approx.

## Universal Joints



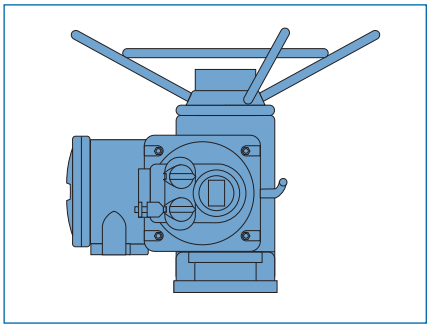
Used in conjunction with extension spindles to allow indirect operating position for valves
Steel or stainless steel
Gatored or ungatored

## Mechanical Indicator Kits



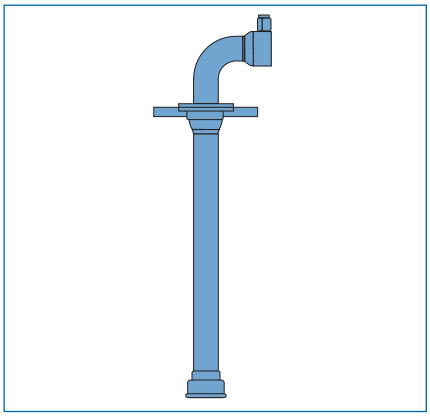

Used to indicate open and shut position of valve
Also used in conjunction with electrical switches, see page 33

## Actuators



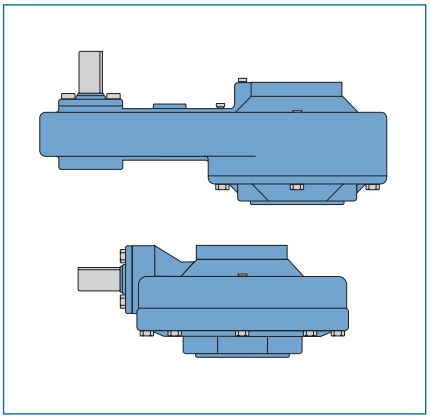
Pneumatic
Hydraulic
Electrical - 110 V, 240 V, 415 V
Integral/non-integral switching
IP65 to IP68
Explosion proof standards for different hazardous zones

## Stand Pipes



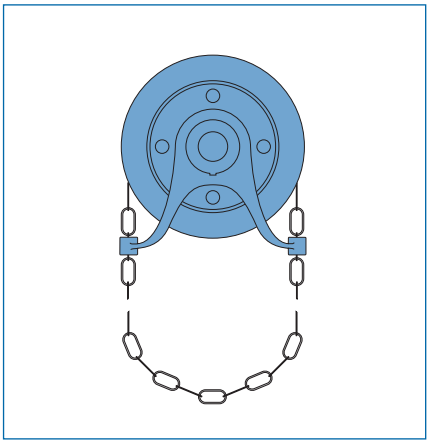
Fireman's stand pipe
To BS 336 with integral double check valve to BS 6282
2 1/2" BSP outlet connector
Contractor's stand pipe
To WRC specification & all current water by-laws
Galvanised steel
With integral double check valve to BS 6282
2 1/2" BSP outlet connector

## Gearboxes



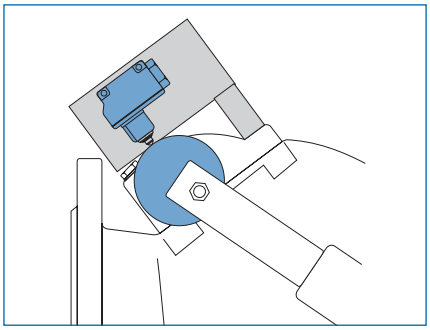
Spur or bevel
Quarter turn or multi-turn
Actuator, cap, wheel, shaft or chain wheel operated
IP65 to IP68
Single or double input
Single or double output
Various coatings available

## Chain Wheels



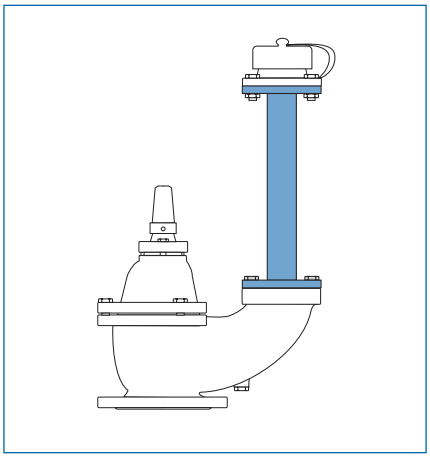
Bolt on type to handwheel or extended handwheel
Cast iron or cast aluminium
Chain length to customer specification

## Switches



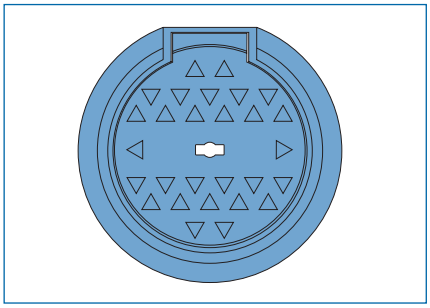
Proximity and limit / micro switches
Non conduit or conduit compatibility
Fitted to gate valves, non-return valves, butterfly valves,headstocks / pillars
Common uses:
Low / high flow detection on non-return valves
Tamper detection on sprinkler systems
Open / shut / mid travel conditions
Flow stabilisation in pumping stations

## hydrant Outlet Raising Pieces



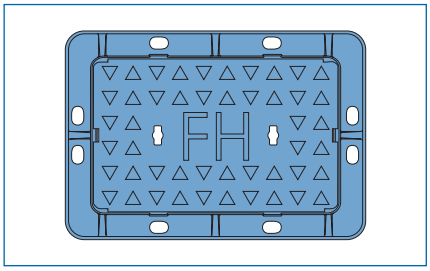
2 1/2" BSP heavy duty steel tube to BS 1387 with BS 4504 flanges
Length to customer requirements
Various coatings to WRC specifications and all current water by-laws

## Hinged Surface Box to BS 5834: part 2: 1983, Grade B2



| Clear opening mm | Over base mm | Frame depth mm | Weight Kg |
|---|---|---|---|
| 185 | 270 dia. | 75 | 5 |

## Surface Box to BS 5834: part 2: 1983, Grade A

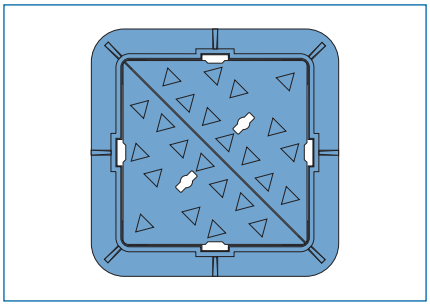



| Clear opening mm | Over base mm | Frame depth mm | Weight Kg |
|---|---|---|---|
| 380 x 230 | 475 x 325 | 125 | 24 |

Conforms to BS 750: 1984, Grade A, badged FH as illustrated
Conforms to BS 5834: Part 3: 1985, Grade A with alternative badging
Prising points for quick emergency access

## Surface Box to BS 5834: part 3: 1985, Grade A

| Clear opening mm | Over base mm | Frame depth mm | Weight Kg |
|---|---|---|---|
| 150 x 150 | 225 x 225 | 100 | 8 |
| 225 x 225 | 300 x 300 | 100 | 14 |
| 300 x 300 | 375 x 375 | 100 | 22 |



## Options

- Badging
- Locking
- Ventilation

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## Fabricated Steel Products

All forms of access platforms, walkways and hand railings are available to meet all customer requirements.
The complete design, manufacture and install package is available.

### Products Include

Access platforms
Walk ways
Hand Railings
Self Closing Gates
and all associated steelworks

### Materials

Materials
Aluminium
Galvanised Steel
Stainless Steel

### Ladders

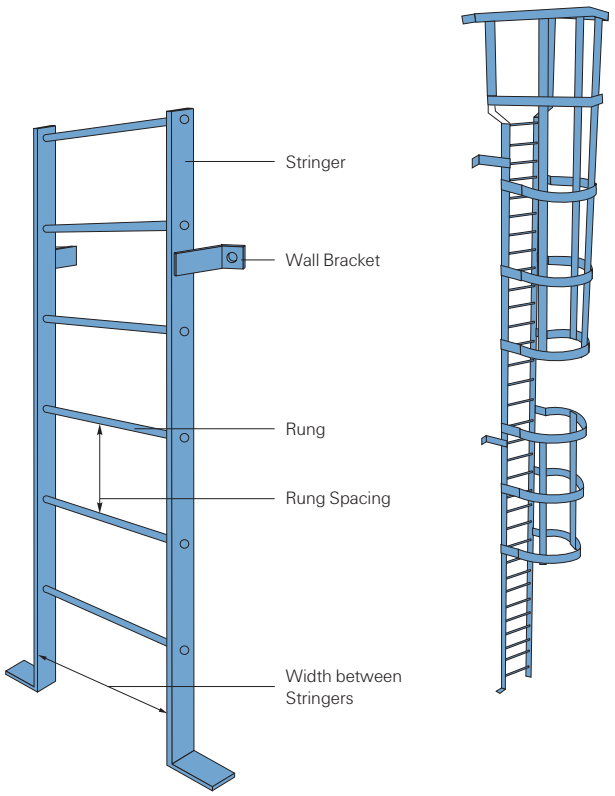
Ladders are fabricated to BS4511:1987, from low carbon steel, hot top galvanised to BS729
Wall fixings may be placed and shaped according to the size and shape of the chamber
Ladders are made to customer specification; Standard dimensions are shown below:

### Ladder Dimensions

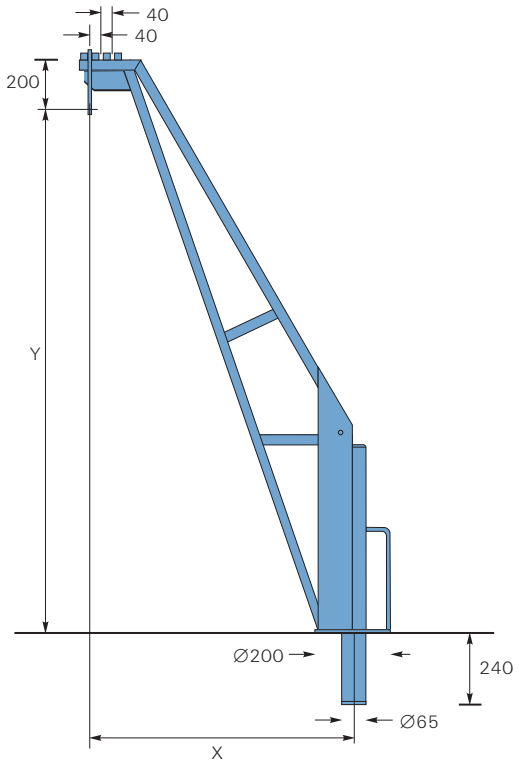
| | | |
|---|---|---|
| Stringers | 65 x 10 | 65 x 20 |
| Rungs | 20 | 25 |
| Width | 420 | 420 |
| Rung Spacings | 250 | 250 |
| Wall Brackets | to suit | to suit |

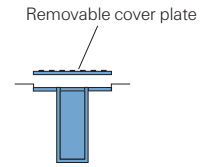
Safety hoops 750mm diameter and above normally begin 2000mm from floor level.

### Ladders

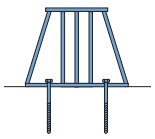



### Portable Lifting Davits




Flush Socket



Floor Socket

Two part construction for easy transport, erection and operation.
Galvanised to BS729
Two standard sizes:

- 500kg safe working load
- 1000kg safe working load

Varying heights and reaches on request
Fully tested and certified on request

### Safe Working Loads

| Safe Working Load Kg | X mm | Y mm |
|---|---|---|
| 500 | 760 | 1700 |
| 1000 | 1070 | 2000 |

## Service Saddle to DIN 3543-BV With Integrated Isolating Valve

**Range of application**

8351-9583 For making underpressure service connections to ductile iron and steel mains from above. For Water PN 16 and for Gas PN 4
8352-9583 For making underpressure service connections to fiber cement pipes from above to DIN 19800 PN 10. For Water PN 10
8353-9583 For making underpressure service connections to metric PVC pipes from above to DIN 19532 PN 10. For Water PN 10

### Dimensions - 8351-9583

| Supply Main DN | Min[11] Outside Dia. (mm) | Max[11] Outside Dia. (mm) | Weight[7] kg | Volume $m^3$ |
|---|---|---|---|---|
| 80 | 89 | 109 | 5.5 | 0.003 |
| 100 | 108 | 129 | 5.5 | 0.004 |
| 125 | 133 | 154 | 6.0 | 0.005 |
| 150 | 159 | 181 | 7.5 | 0.006 |
| 200 | 219 | 231 | 9.5 | 0.008 |
| 250 | 273 | 285 | 12.5 | 0.010 |
| 300 | 324 | 337 | 15.5 | 0.020 |

### Dimensions - 8352-9583

| Supply Main DN | Min[10] Outside Dia. (mm) | Max[10] Outside Dia. (mm) | Weight[7] kg | Volume $m^3$ |
|---|---|---|---|---|
| 80 | 98 | 108 | 7.5 | 0.003 |
| 100 | 120 | 130 | 7.5 | 0.004 |
| 125 | 149 | 159 | 9.5 | 0.005 |
| 150 | 178 | 188 | 12.0 | 0.006 |
| 200 | 234 | 244 | 15.0 | 0.008 |
| 250 | 286 | 296 | 20.5 | 0.010 |
| 300 | 342 | 352 | 24.0 | 0.020 |

### Dimensions - 8353-9583

| Supply Main (DN) | Outside Dia. (mm) | Weight[7] kg | Volume $m^3$ |
|---|---|---|---|
| 80 | 90 | 7.5 | 0.003 |
| 100 | 110 | 7.5 | 0.004 |
| 125 | 140 | 9.5 | 0.005 |
| 150 | 160 | 12.0 | 0.006 |
| 200 | 225 | 15.0 | 0.008 |
| 250 | 280 | 20.5 | 0.010 |
| 300 | 315 | 24.0 | 0.020 |

### Technical Specification

| Product Description | Supply Main | Pressure Rating PN | | Hydrostatic test Pressure in bars | | Maximum admissible working pressure in bars at a working temp. of up to 60°C | |
|---|---|---|---|---|---|---|---|
| Reference | DN | Water | Gas | Body | Seat | Water | Gas |
| 8351-9583 | 80-300 | 16 | 4 | 24 | 16 | 16[2] | 4[3] |
| 8352-9583 | 80-300 | 16 | NA | 24 | 16 | 16[1] | NA |
| 8353-9583 | 80-300 | 16 | NA | 24 | 16 | 16[1] | NA |

When placing the order, please specify flow, medium, working pressure, working temperature, and outside pipe diameter.
**Outlet:** right-hand internal Whitworth pipe thread Rp 1 1/2" to DIN 2999 part 1[5,6] (1 1/2" BSP F/I)

### Materials/Equipment

| Description | Specification |
|---|---|
| Corrosion Protection of Body Components | EKB Epoxy Coating, Blue, RAL 5015 |
| Upper and Lower Body Parts | Ductile Cast Iron SG GGG50 |
| Strap (8351-9583)<br>Strap (8352-9583 & 8353-9583) | Steel, Rubber Sheathed<br>Cast Iron GG25 |
| Rotary disc and Pinion shaft | Stainless Steel |
| Shaft Bearing | Special Brass |
| Sealing Rings | Elastomer, Steel-reinforced |
| Connecting Bolts | Steel, Countersunk and Grouted |
| Gudgeons / Washers and Nuts | Stainless Steel A2, DIN-ISO 3506 |

## Screw-in Service Connection Valves

**Range of application**

8362-9583 Isolating valve with R 1 1/2" (1 1/2" BSP F/I) threaded outlet to be screwed into a pipe clamp without an integrated isolating device or into a pipe connection piece welded onto the supply main.

When placing the order please specify flow, medium, working pressure, working temperature.

**Connection:**
Whitworth pipe thread R2 (2" BSP M/I) to DIN 2999, part 1

**Outlet:**
Right-hand internal Whitworth pipe thread Rp 1 1/2" (1 1/2" BSP F/I) to DIN 2999 part 1[5,6].

### Technical Specification

| Product Description | Pressure Rating. PN | | Tests | | Max. admissible working pressure at a temp. of up to 60°C | |
|---|---|---|---|---|---|---|
| Reference | Water[2] | Gas[3] | Water[2] | Gas[3] | Water[2] | Gas[3] |
| 8362-9583 | 16 | 4 | DIN 3230, part 4 | DIN 3230, part 5, PG 1 | 16 bar | 4 bar |

### Materials/Equipment

| Description | Specification |
|---|---|
| Corrosion protection of body components - 8365 9583 | EKB Epoxy Coating, Blue, RAL 5015 |
| *Option*<br>Corrosion protection of body components - 8365 7283 | Body Bore - Vitreous enamel<br>Body Components - CerMet Enamel<br>Additional Outside Coating - Synthetic Resin, Blue 5015 |
| Upper and Lower Body Parts | Ductile Cast Iron SG GGG50 |
| Rotary disc and Pinion shaft | Stainless steel |
| Shaft Bearing | Special brass |
| Sealing Rings | Elastomer, steel-reinforced |
| Connecting Bolts | Steel, countersunk and grouted |
| Weight (kg) | 4.6 |
| Volume ($m^3$) | 0.004 |

## Notes

1) Range of application and tests for service in water mains up to 10 bars. Pressure tests to DIN 3230, part 4.
2) Range of application and tests for service in water mains up to 16 bars. Pressure tests to DIN 3230, part 4.
3) Range of application and tests for service in gas mains up to 16 bars to DIN 2470, part 1. Pressure tests to DIN 3230, part 5, PG 1.
4) Parallel outside threads G 2 A right-handed to DIN ISO 228/1 available on request (no DVGW-approval).
5) Sealing of parallel threads requires additional sealing agents on the peripheral faces of the thread of the parts to be screwed, as for example PTFE tape or liquid thread sealing agents. It is necessary to check whether these agents are admissible for the particular application e.g. DVGW approval for gas.
6) Threaded transition pieces for other drilling machines on request.
7) Net (without obligation).
8) Corresponding to former DIN description 0.7050 (GGG-50).
9) Corresponding to former DIN description 0.7050 (GG-25).
10) According to ETERNIT Specifications
11) Includes PE-sheathed pipes to DIN 30670 and DIN 30674

# CIS - Cast Iron Services - Ductile Iron Pipes and Fittings

## Cast Iron Services

Established in 1977, C.I.S. (Cast Iron Services) Ltd. is one of the largest British manufacturers and suppliers of ductile iron pipes and fittings.
The company specialises in the supply of fittings and fabricated ductile iron flanged pipe, offering a large stock for immediate distribution throughout the UK.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